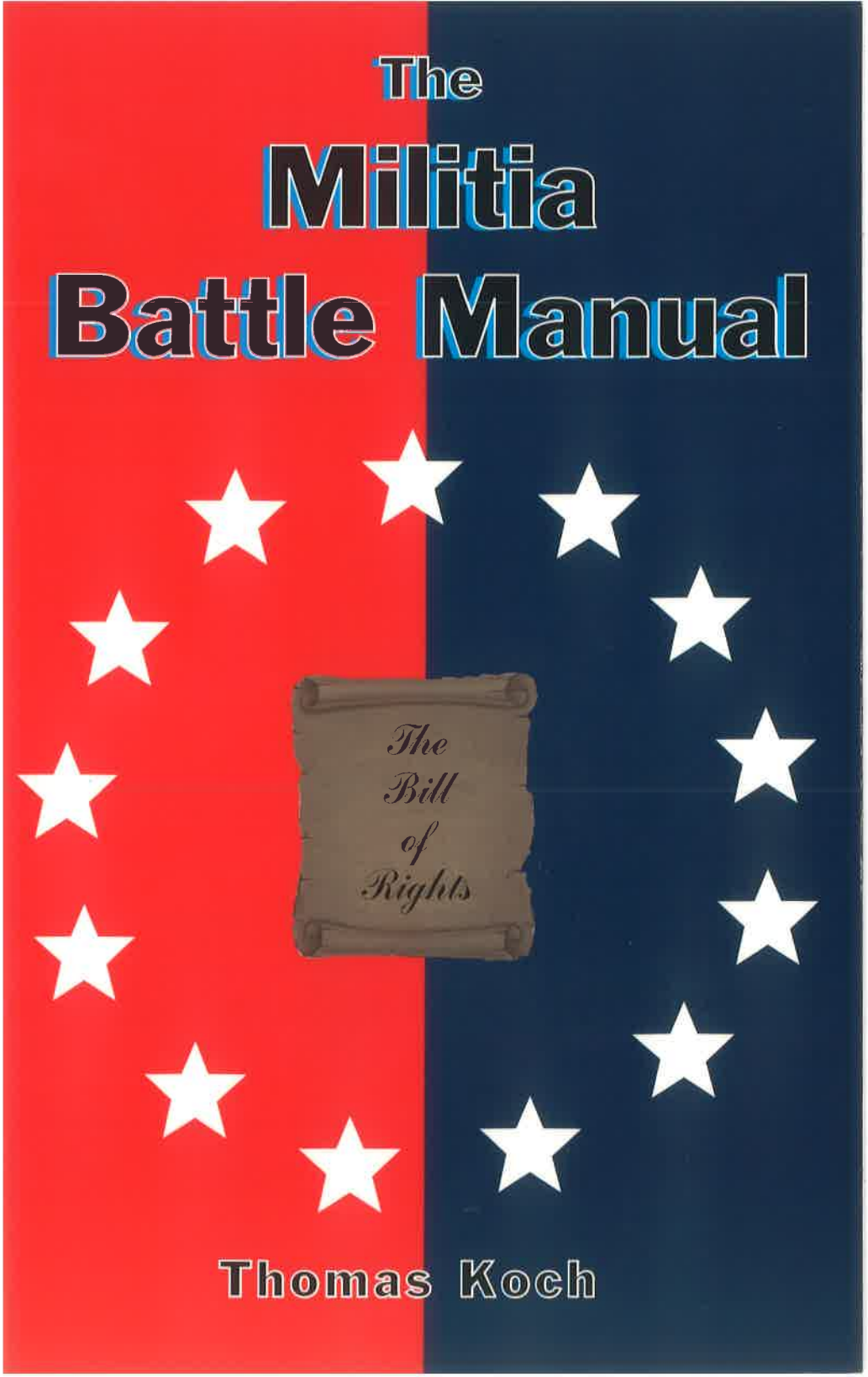
The Militia Battle Manual



Thomas Koch

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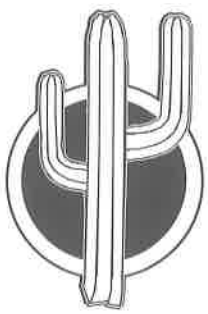
By

Thomas Koch



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Introduction

The Militia Battle Manual is a manual for the modern rebel operating out of an industrialized society. This book is comprised of a series of chapters, each dealing with a subject of importance to a modern rebel organization. The politics or reasons behind military resistance against established state or occupational government are not the focus of this book. This book is merely instructions for those who feel the need to heed them.

You may ask, "why should anyone be interested in this military stuff? This is America, we are a free society, and we have a powerful Army to defend us." To this I reply, what are you, special? Do you think that just because you live in America you are immune to oppression, or foreign occupation? Just how free is this society you were told was free and for how much longer? What makes you think that the Army is around just to protect you anyway?

You cannot run away from the world. All you can do is prepare. Even if buying this book is all you do, you'll be that much better off. When the time comes that the information in this book is really needed, this book will no longer be for sale (and I will be in some stinking hole of a political prison). The information will have to be gained through experimentation and trial and error.

I'm not recommending that anyone go out and form a rebel unit at this time. We do have it pretty good here in America. Just imagine what it is like in Africa. On the other hand, it is never too early to lay the foundation for a defensive organization. Just looking around at this place gives me the creeps sometimes. We have the Black militants who are planning rebellion for as early as 1995. We have the A.T.F. guys who serve search warrants with hot lead instead of paper. We have the F.B.I. which can do whatever it wants in the interests of national security including burglaries, electronic monitoring without warrants, and compiling lists of people to be placed in concentra-

tion camps during future wartime. We have the C.I.A. which does the same things even though domestic intelligence is supposed to be strictly off limits to them (read *The Surveillance Age*). Yeah, this place seems great but it is mainly because of what you don't know. The more you know the more sense it makes to begin to prepare for the worst.

I don't feel the need to give a hard sell to anyone about this book. If you can read, then you are probably at least halfway reasonable. If you are halfway reasonable then you can see the need to prepare for the future, hence the need to buy this book. Whether you feel that you will need to defend yourself in the future from our government, foreign occupation, or your damn neighbors, this book is for you.

This book is pure instructional matter. I've included no personal stories, or irrelevant information. It is simply a manual on guerrilla warfare in modern societies. I think that most serious readers will be relieved that they will not have to sift through a bunch of BSing to get to the facts. I know that this is how I would want it.

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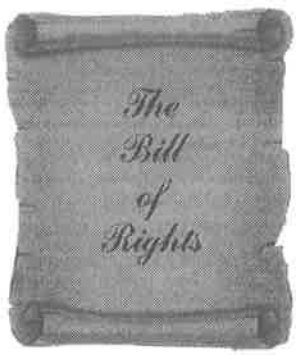

The
Bill
of
Rights

Chapter 1

Organization

The organization of your group is of paramount importance. The organization should be structured with a few basic rules in mind. Using these structural rules you will build a more stable and capable group.

The first rule is to use cells. An organization will consist of many of them, some specialized, some not. Cells provide for a more secure and capable group. A cell is a person, or a group of people who will work closely together to accomplish a task. Cells will consist of people who already know each other, and have been friends for a long time. One of these people will be the leader of the cell. The leader is also the go-between for the cell and the organization's command structure. Within the cell, members will know of no other cells, and receive information on a need to know basis. This basic organizational type of unit will provide security in that if it is uncovered it can only reveal names of people within the one cell. Also, only one member will know the names of any members of the command group. Using cells of people that already know each other is more likely to increase group cohesion and trust within the cell.

The second rule is to let the organization group grow naturally. Don't transfer members from one cell to another. People enjoy stability. Don't advertise what you are doing or force people to join. If you have a good cause people will be ready to join without persuasion. Don't force cell leaders to recruit new members too fast– it will happen in time.

The third rule is be realistic. Design your organization with a goal in mind, and don't ask cells to perform impossible tasks within that goal. For example, don't give a cell with one man in it orders to attack a police station and keep the police pinned down while you blow a bridge. You must have a feel for the capability and armament of each cell to use it effectively. Have a plan of action in advance, and use cells or combinations of cells to carry out tasks within that plan. If you have a plan in advance, you can ensure that the proper cells receive the necessary equipment and training to complete their jobs.

The fourth rule is to keep the organization as simple as possible without sacrificing order or effectiveness. Do not make things more complicated than they need to be. This will keep things moving smoothly and safely as well as in a more secure fashion. The fifth rule is do not generate a lot of paperwork for use within the group, or to keep track of the group. You will have to keep some records, but keep them all together, and do not make copies. Any propaganda released by your organization should never be traceable back to it. Never put a name or a title on anything you print or write.

The sixth rule is to establish clear chains of command. If a leader within a cell is killed or wounded the members of that cell should know who will take command. The same goes for the entire organization. If the leader of the entire organization is killed or wounded, the person that has been designated to take over in his absence should immediately take charge. New leaders assume the rank of the people they are replacing on a temporary basis. After the action is over a permanent decision as to whether that rank will be kept can be made.

STRUCTURE

Structure should be simple. There is a basic three phase pattern your organization will transform through. Each phase is indicative of what the organization's short term goals are. None of the phases are mutually exclusive of the others, and may occur at the same time. The point to the three phase system is to give you an understanding of how to build an organization.

PHASE ONE

The first phase is the creation phase. This is when the organization is new, and has no members. The short term goal of the first phase is to recruit members to perform tasks for the group.

At this point it is not wise to attempt to recruit only specialists. The goal is quantity, not quality. Skilled personnel or people with contacts will come in their own time.

When starting the first phase you will probably not have more than a good cause and a few of your buddies who feel the same way. Your good friends will make up the command cell, with you as its head in the first phase. Your friends may not be talented or clever, but willpower and loyalty are more important.

The command cell is the only cell that will carry out any military, covert, or other active actions in the first phase. This is for security reasons. Do not trust new cells that have just been created out of people who are strangers to you. The members of the command cell should be seeking new recruits to build new cells of their own. Later the command cell may be broken up with each member becoming the leader of the cell he recruited. The purpose of the command cell is not to share authority, but to be able to carry out operations as needed while in the first phase, in a secure fashion.

The trick to recruiting is to allow others to tap into circles of friends you would not have access to. Each of these circles then becomes a cell of its own, with one contact to the command cell. The leader of the organization has the responsibility of recruiting new cell leaders to form new cells. Cell leaders should recommend other potential cell leaders to the organization's leader for possible recruiting. In this way the organization will form into many compartment-like cells. Most of them will be completely unknown to the others. Each cell will have one member who reports directly to the organization leader for instructions.

The organization leader should keep up on how many members are in each cell, their skills, and assets, but must never know the actual name of anyone except the cell leader. In

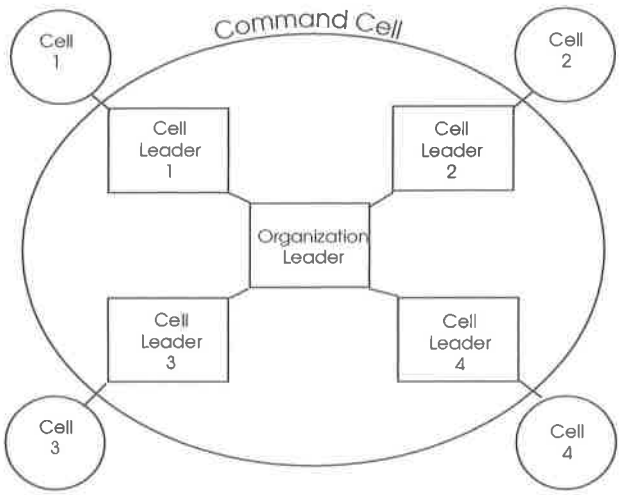
records even the cell leader must only be referred to as a code name. In the same vein, members of cells should not know who the organizations leader is. Secrecy is security.

Recruiting during the first phase will be an unfamiliar task. You will find that it gets easier as the group grows. You should approach people after you've already heard their opinion on the subject of your cause. Don't run up to strangers with applications or breathing fiery rhetoric. Just listen to what people say. Steer a conversation so that you get their own unbiased opinions about your cause. If they seem like the kind of person who would be a benefit to your organization, or might be interested in joining it, then pursue them a little harder. Ask them if they would like you to put them in touch with an organization with their same beliefs. If they are not the kind of person you are looking for, then drop the subject. If you want them, then give them a copy of your training manual and goal statement without revealing your connection to the group. Give them a day or two to read it over, then ask them if they want to join. Remember, that as the organization leader you are only recruiting cell leaders. The people you recruit will get their friends interested, and form the cell that reports to you.

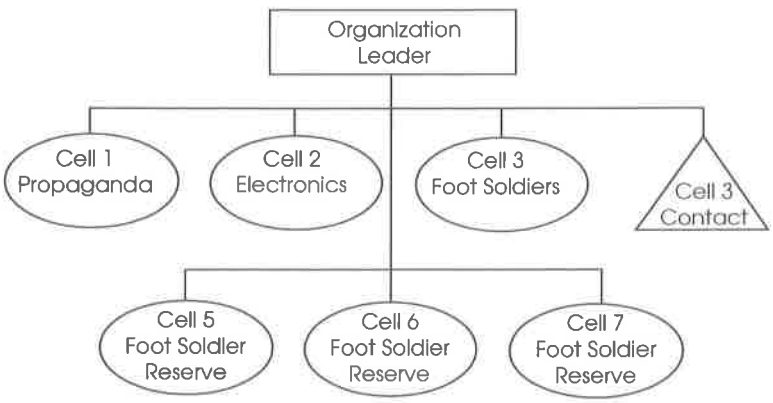
PHASE TWO

The goal of phase two is to begin operations. You should already have a goal in mind for your organization. In phase two you need to examine the troops, and specialists that you have at your disposal and formulate a realistic plan to achieve your goal. The emphasis of phase two is to switch operations from the command cell to new cells that you have deemed to be trustworthy. Phase two will call for the first specialization of cells. Lack of equipment and training will create a need for certain cells to take on special duties. For example, a two man cell with access to a personal computer, and printer may become the cell responsible for generating propaganda. If you have a crew-served weapon that requires special training, a small cell may have to specialize for the duty of using it. A military trained specialist, such as a sniper, is best used in a special sniper cell. Large cells that are devoid of specialized

Organization



Phase 1 Cell Structure



Phase 2 Cell Structure

training should become foot soldiers. A one-man cell with access to important information is best used as a devoted contact cell. Depending on the goals of your group, the skills of its members, and your ability to give them sound training, any number of special cells may be created. As a rule, the technical cells should be kept out of combat duties so they may perform their more important support tasks.

The overall plan you form during phase two to accomplish your goals should be realistic. The best way to formulate the plan is to start at the goal and work backwards. For example, if the goal of your group is to eliminate a certain faction of people, or political group, and insure that it never returns, you should start with that. Next, ask what would be necessary to accomplish that goal. Maybe it might be to eliminate all of the faction leaders and spokesmen. Now you need to ask how to eliminate them. Then you will need to ask who will do what in the process of eliminating them. Just continue questioning backwards until all aspects of the plan are covered in detail. It is a simple process, but the details are what will make or break the plan.

During phase two the recruiting should continue as activities take place. Cells should only be included in the activities as necessary. Ninety percent of the cells in the organization should remain in a limbo-like reserve status. They should not be informed about any activities the organization is undertaking, or future activities planned. The fewer people who know about anything the better. The change of focus for activity from the command cell to special cells should be done to ease the workload of the command cell, make use of better trained people, and keep the leadership farther from the activities so that it may focus on the big picture. If you don't have any reason to switch to phase two, other than the formulation of the overall plan, then stay in a phase one type of format while pursuing the plan.

PHASE THREE

Phase three is the all-out war stage. It will be marked by the activation of all cells. In phase three the risks of not using all cells will outweigh the risks of using them. At this point it won't

matter if one cell has an FBI agent in it, because it will be too late for him to do a thing. Being security conscious won't mean a thing because everyone will know who you are. You'll be the one leading an army of gunmen through the city.

Phase three is the all-out effort to achieve the goals of the group according to the plans you have laid. Phase three should be put off as long as possible. Try to accomplish the goals of the group without progressing past phase two.

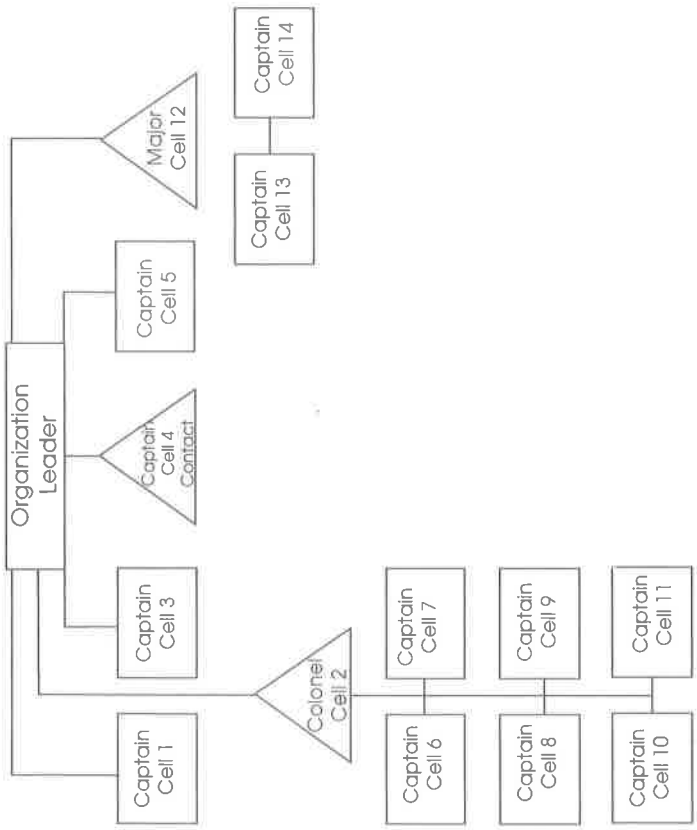
RANK

The rank of members of the organization is based on the number of people that the member has recruited. Rank is used as an organizational technique for keeping track of cell leaders, and how many people work for them.

All cell leaders are captains. Captains may assign rank within their own cell as they deem necessary. The captain is the basic leadership rank within the organization. Members of cells do not owe allegiance outside their cells to other captains.

If a captain finds a recruit who seems capable of starting his own cell, then he recommends that recruit to the organization leader. The leader checks the recruit out and decides whether to recruit him or not. The leader does not actually have to meet the recruit to do this. If the leader decides the recruit should be allowed to start his own cell, then the recruit is referred back to the captain that recommended him. The new cell leader is given the rank of captain, and now reports to the captain that recommended him. The captain that did the recommending now has two cells at his command and is promoted to major. A major is anyone who has more than one cell reporting to him. A major has the responsibility of reporting for all cells under him. Cells that report to a major do not report to the organization leader, but are still responsible for carrying out his orders.

If a major has five or more cells under him, he may be promoted to colonel. The organization's leader may remove a cell from the command of a colonel, if it has growth potential, at any time to keep the organization growing. This cell will then report directly to the organization's leader.



Typical Rank Structure

Never give out rank as an award for outstanding performance. Rank should be used only as an organizational technique. If you feel the need to reward the outstanding performance, or long term loyalty of an organization member then devise a separate award system. Rank has a separate function from award.

FUNDING AND EQUIPPING

Every army needs special equipment. To get special equipment, an army needs money. How to grease the wheels of a war-machine is a time honored problem.

FUNDING

There are four ways to get an army the equipment it needs. The first way is for the leader of the organization to pay for everything. The second way is for the leader to solicit funds from benefactors. The third way is for each member of the organization to pay for his own equipment. The fourth way is to steal the money needed.

The leader paying for all the equipment is not a bad way to go, if he is loaded. He would only have to be careful not to leave a paper trail. This can be avoided by having others buy the equipment with the leader's money. The members of an organization provided for in this way would have a higher degree of loyalty than if they paid for the equipment themselves. They would have a feeling of being a part of something bigger than a militia type mob. Members would also have a sense of indebtedness to the organization that provided their equipment.

Soliciting funds will not be a good idea for most groups. It involves becoming dependent on an outside source. Soliciting also involves exposing your army to outside scrutiny. Any contributor will ask probing questions about what you are all about.

To keep secure a leader should avoid soliciting himself, and have a devoted cell perform the task. This will keep the leader and the group safe from public exposure. Use a devoted cell because anyone who is successful at raising money will be too valuable to risk losing on the battlefield. Whatever benefactors are located will also like dealing with the same person over and over.

Having people pay for their own equipment is the best way to go for most small groups. It involves giving people a list of essential items to purchase for themselves. When going this route the big problem is ensuring that everyone buys what they need. Do not even expect people to show up armed before a battle in some cases. When using this method to equip the leader still needs to buy some extra equipment to be passed out to those who have nothing when the time comes. Ultimately it will still be the leader of the organization who is responsible for completing any mission, and he must ensure that he has the proper supplies.

The fourth way, theft, is very risky for a small group to try. To those who are unschooled in revolution I will say it is a tried and true method. Stalin himself used to rob banks for Lenin and the Communists as they struggled to come to power in Russia.

To steal a criminally adept cell is needed. Preferably a cell that has been stealing for quite some time. Stick to low security places like restaurants, and small stores. Avoid targeting private citizens and high security places such as banks. Stealing from Joe Public is a quick way to make a bad name for the organization. One only need to ask any gang-banger from L.A. to realize that. Robbing banks will increase the chance of getting caught faster than any place else.

When committing the robbery, take only cash. Anything that has to be fenced, pawned, or is registered (like guns) has the potential of getting the thieves caught. Refrain from causing any unnecessary damage to the place that is being robbed. Talk as little as possible, and never make any type of political statement, or statement that may tie the robbery to the organization that is performing it.

EQUIPPING

Once the decision of how to fund the group has been made, the question of what type of equipment must be gathered is next. What should every basic cell member have at his disposal, and what type of specialized equipment is needed for any special cells?

Basic equipment for all members should be what is needed to operate in a war situation, if one should occur. This list of basic equipment provided is not concrete. It can be added to but, taking away from it might be a problem. The basic list should be kept to a minimum, especially if the members are buying the equipment for themselves. They just won't buy what they don't think is necessary, or cannot afford.

The first thing any member will need is a weapon. An assault rifle is your best choice. After an assault rifle, a shotgun or a hunting rifle are average choices. These are two readily available choices for those who cannot get hold of an assault rifle. A final choice is a pistol. Stay away from pistols as anything but a backup. They do not have the range or accuracy that is required for any serious fighting. Bows, crossbows, knives and other "stone-age" weapons are not a choice for basic weaponry. Stone-age weapons may have some specialist uses, but the bottom line for basic weaponry is to give people a fighting chance on a battlefield.

Weapons should be accompanied by a large amount of ammo, hand grenades, and some sort of pouch to carry it all in. The ammo should be preloaded into as many magazines as possible, but loose rounds are better than no rounds. The pouch should keep the ammo accessible, but out of the way and under control. Hand grenades can be of the pipe bomb variety. It is just good to keep a few on hand, especially when clearing buildings.

Uniforms are also necessary. By uniform, full camouflage and combat boots is not what is meant. A uniform for these purposes is something to identify members of your organization on the battlefield from other militia-type or military organizations. A uniform can be as simple as an arm-band of one color. A uniform in most cases will also include some sort of facial covering, like a ski mask, or a bandanna and sunglasses.

Full camouflage can be problematic if chosen as the required uniform. First, it is expensive, and for this reason not everyone will have it when the time comes, unless the organization is supplying it. Second, full camouflage can be a hindrance to a group that has to melt back into a crowd after a mission. It might

look cool to dress like a commando when going on a mission, but if it is going to be more of a problem than a help, then don't do it.

The best type of uniform that should be required is an armband with optional camouflage underneath. The camouflage should be something that helps you blend in, but is quickly removable, and discarded allowing the member to blend into a crowd. A good pair of hiking boots should be recommended as foot-gear. A general type of distinguishing headgear could also be recommended to aid in identification on the battlefield. Examples of general headgear would be any military headgear, or any hat that is black.

Communications gear is another important part of basic gear. At the very least, every cell leader should have some sort of communications device that is compatible with everyone else's in the organization. The device will preferably be multichannel or have changeable frequencies. Every radio operator should also have a set of extra batteries for his communications device.

Each radio operator should have a memorized list of what channels or frequencies will be used. It is best to have one frequency for the organization leader to communicate with all the cell leaders, and other frequencies for single, or groups of cells who are working together to communicate over. This will allow the leader of the organization to give large movement orders to cell leaders without having to talk over cell members who are conducting fire-fights.

All designated channels and frequencies should have backups. The organization must be prepared to switch channels at a prearranged signal, or in the event that communications are being jammed. Try not to change channels, unless it is absolutely necessary. Whenever the signal to change channels is given someone will miss it, and be out of the net for a while. The law of radio communications is keep it simple.

Food, water, and some money are other important basic items. The food and water are self explanatory. The money is for anything that might come up. You just never know what is going to happen, and money has a way of making things right.

Once all the basic gear is covered, there is advanced gear for special cells. Trying to get advanced battle gear for special cells will be next to impossible. An organization will more than likely be forming cells around anything it happens to scrounge up, and not finding specific gear for cells it has already created. Other advanced noncombat gear, such as computers, high powered transmitters, and the like will be slightly easier to come by. Members of the organization will probably already have some of these items, as well as the skills necessary to use them. An organization will likely be creating cells around this type of equipment also.

TRAINING

Training for a group of individuals who will rarely even know who their ultimate commanders are is a difficult thing to arrange. For this reason cell leaders will have to be responsible for all training that is done in their own cells. Depending on who the cell commanders are, and the disposition of the cell members, an organization will have well, or poorly trained cells. Cell leaders may also have a hard time getting normally good members to find time to show up for training. Another problem will be that finding an area to conduct live fire exercises may be next to impossible.

For the reason that training will be hard to accomplish, an organization leader should set down no more than basic requirements as mandatory. Cells should be encouraged to train beyond the basic requirements, but not penalized if they do not. The basic requirements should include the ability to hit targets consistently at a minimum of one hundred meters with the weapons that will be employed in battle. The ability to load, correct malfunctions, and clean the weapons that are to be used. The ability to sprint for 100 meters, and walk at least three miles in full gear. The ability to throw a bomb far enough that it won't kill the thrower. And, the knowledge of all basic tactics the cell will use in combat.

Cell leaders should be required to know a few more things than the cell members. Among these should be the ability to read a map and to communicate over cell radio equipment.

It is hard not to see how low the standards must be for basic requirements. An organization can reasonably expect to have a large majority of members in it that far exceed these requirements. The point of keeping the standards so low is not to exclude any potentially good members for lack of training. After all, OJT is the best type of training there is, and when members go to work they will learn the ropes. Also, anyone who can not meet these requirements is a definite lemon for combat purposes. An organization may still want to make use of people who fail the minimum requirements, but it will need to keep an eye on them.

Members of special cells should train for the purposes of their cells. For them advanced technical abilities are the basic requirements. Whether the purpose of a special cell is to build homemade radio devices, or to run high speed sabotage missions, a special cell member must know how to complete his job. A member of a special cell who is unwilling or unable to complete his job is useless.

Members of the organization must also be mentally trained to accept the risks they will take in order to further the cause. An organization must remind its members that its cause is their cause, and it is a good one. Younger recruits will be much easier to train in this fashion. They want to help, are eager to learn, will gladly put their lives on the line, and are very loyal. For these reasons they should be utilized. Never let the members of the organization lose faith in the cause. Once an organization has lost the minds of its followers their bodies will be soon to follow. Members should also be mentally prepared to face the fear of a fire fight, and be forewarned that cowardice will not be tolerated.

Training is something that is done to prepare the members of an organization for what they must do in the future. Good training is something that a person will fall back on when the time to think about reacting to a situation has long passed. In a situation like combat, people will react the way they were trained to, because they won't have time to think. An organization's training requirements should be drawn up with that in mind.

Chapter 2
Combat Operations

The ideal situation would be for an organization to be able to accomplish its goals without ever having taken a life. This, however, will not always be the case. It may be necessary for an organization to escalate to continue to survive under whatever forms of oppression it encounters. Simple information and propaganda may not be enough to convince the powers that be, or a rival faction that a cause is just, and may even invoke bloodshed or a reign of terror. Times like these may cause a need for more malicious forms of popular defense, such as assassination, sabotage, and even taking to the field to combat the enemy. This escalation should never be taken lightly. Taking a life is a permanent and potentially troubling thing. The organizations leader himself must ultimately make the decision to do it, and accept all the guilt that may come from it. If escalation is required the organization should keep from going to the field as long as possible, because this means exiting from society and its benefits. If an organization does take to the field it should only take those members who are publicly known and wanted, and keep as many as possible in society to procure supplies, recruit, and rotate into the field when needed.

Any acts of military confrontation, sabotage, or assassination should be carried out in accordance with an overall plan. The leader should have a goal in mind, and not just be randomly destroying things and people. The ultimate goal is to get a region, and, or people under control. To get the popula-

tion to see things the organizations's way, and conduct themselves accordingly.

Don't kill just any politician you see on the street. Kill the ones who are opposed to the cause, and trying to get the most extreme measures against it passed. Don't just blow up any building. Blow up the people and buildings that are most against the cause, or will give you a strategic advantage in the field.

Whatever an organization leader does he should never kill the innocent members of the population. The population is the key to victory, and must be taken care of at all costs. After all, any cause that doesn't mind killing off the people it is trying to help is flawed from the start. The people must want you to win, or they will all become your enemies.

An organization should never cease turning out propaganda. Propaganda is important to keep the people informed of the righteousness of the cause, and why it is so good for them. It is the life blood of any movement. It should not be ceased just because a shooting war has erupted, or is being won.

The purpose of this chapter is to give the reader a basic guide on how to conduct smaller units in the field. Larger units, which are made up of these smaller units, are directed in accordance with an overall strategy. This bare bones guide of proven military doctrine is for the basic operations of the smaller units. Consider this chapter to be like a set of tools that is to be used by each of your leaders as they conduct their missions, helping to bring the overall plan of the larger unit into fruition.

The procedures described on defensive, offensive, and patrolling are all sound military doctrine. They have been compiled from military sources, and are used by the military today. These concepts are the basics of conventional warfare and should be instilled in any troops that an organization fields.

THE DEFENSE

Defense in an area of combat action is as much an exercise in common sense as it is of fire power. The basic idea behind a defensive position is to select an area where the defender is at

an advantage over any who would attack him. This is done by selecting a general area that is high in cover, concealment and visibility of the surrounding terrain. To further the advantage defenders should try to select an area where the attacker will be highly exposed to defensive fire when advancing.

DEFENSIVE POSITIONS

When operating as an isolated unit, the defensive position should be circular with a closed perimeter. Indirect fire weapons, such as mortars, should be in the center. Automatic weapons should be aligned along the most likely avenues of enemy approach, or where they have the most commanding fields of fire. Isolated bases should move around often. Being located is the first part of being destroyed. Never occupy the same place twice. Do not follow a pattern as you change positions, such as moving five miles up a stream in the same direction each day. Keep in mind the famed guerrilla Che Guevara was located by infrared satellite sensing of his stove as he cooked each night.

When operating as part of a defensive line a smaller unit should always be in contact with units to its sides, and come into a line formation. Indirect fire weapons should be kept to the rear along with a reserve group of up to one third of the forces if possible.

A perimeter that is to be occupied for any period of time should have barbed wire put out to the front, and mines in mapped locations. This is not always possible for the commander who is short of supply. Perimeter defensive positions should also have interlocking fields of fire.

URBAN DEFENSE

In an urban situation a defensive position is much easier to build up, and rarely in need of camouflage. As a guideline buildings should be defended from the second floor and higher. The first floor should be barricaded and booby-trapped as much as possible. Stair cases should be blocked off, and people should be ready to throw grenades down them. Windows should never be manned by more than one person, and unmanned windows should be blocked off. All window screens should be left in

place to fend off grenades. You should remember that not all walls will stop a bullet, so build up interior fortifications with sandbags and other items to fight from behind. Loop-holes (holes made in walls by cannon fire) and cracks make better defensive positions than windows or doors. Finally, when shooting don't fire from the window sills or doorways, fire from the interior of the building to obscure your muzzle-flash.

HOLDING ATTACK

The holding attack is a basic defensive strategy for any sized unit to use when involved in combat. It should be understood by all soldiers and implemented whenever possible. In the holding attack the unit that is being attacked becomes two elements. The first group holds its ground and maintains contact with the enemy. The second element breaks contact if it is in contact and swings around to the side of the enemy attack. This is outflanking the enemy at his most vulnerable time, when he is on the attack. The idea is to create a cross fire or catch the enemy off guard and make him fight on two non-conjunctional fronts.

FIGHTING POSITIONS

The basic form of defense is the fighting position. This is a foxhole. It can accommodate one, two or more men. Any defensive position will consist of many of these arranged in a perimeter. The ideal fighting position is a two-man one with several qualities. A fighting position should be armpit deep with enough room for two men to move around in. The dirt that is removed from the hole should be used to build up parapets to the front, the sides and the rear. The parapets should keep at least 18 inches of dirt in between defenders and the enemy. Logs or other supportive material should be placed over the position resting on the front and rear parapets for overhead cover. Dirt should then be spread over the logs along with a sheet of waterproofing material when one is handy. Finally in the bottom of the position a grenade sump should be dug. A grenade sump is a hole close to three feet deep, stretching from the front of the position to the rear, and eight inches wide, in the center of the fighting position. Enemy grenades are kicked into this.

After the position is built, make sure it is camouflaged in such a way that it is invisible out to at least 35 meters. Your soldiers should be working to improve their positions as much as is feasible.

AMBUSH

The ambush is an active form of a defensive position. The basic idea of an ambush is to catch the enemy in a cross-fire where he is both surprised, and at a tactical disadvantage.

To set up an ambush of foot troops, first choose a good location. A good location is a place where the enemy soldiers must travel through and will be at a disadvantage when they do so. An example would be a bridge over high water, or the bottom of a steep ravine; any place that will constrict the enemy's movement. Next, place troops in positions that are high in cover and concealment around the kill zone of the ambush. Set them up in an L-shape so that no friendly troops will be caught in a cross fire. Unless detected, the ambush should be initiated by the leader who will both open fire, and shout "fire" when the enemy has filled the kill zone in sufficient numbers.

Ambushing vehicles is done in a similar way. The site will in most cases be a road. Choose a section of the road that is just after a blind curve, and allows for good cover and concealment of ambushing troops. Set up a road block to stop the vehicles, and cause them to jumble together. During the Russian coup when Yeltsin attacked parliament you may have noticed an attempted ambush of armored vehicles by some parliamentarians early on in the attack. Had these people set up a road block instead of just slinging molatov cocktails at the passing vehicles (which all missed) they might have changed the course of history. When ambushing vehicles insure that you have the proper weaponry to destroy them.

After a successful ambush, don't hang around, chances are you only got a lead element, the rest of the enemy will be sure to follow. Break contact and get out of Dodge.

RECONNAISSANCE

Gathering information about the enemy is an imperative. If you don't know where he is and his strength, you are going to be eliminated. Information can come from a variety of battlefield sources but should always stick to the SALUTE format.

SALUTE REPORTS

SALUTE is an acronym for the different questions you should be asking yourself when you see the enemy. "S" stands for size, how many or how large is the unit? "A" stands for activity, what are they doing? "L" stands for location, where are they? "U" stands for unit or uniform, who are they, what identifying clothing are they wearing? "T" stands for time, when did you see them? "E" stands for equipment, what are they carrying, do they have vehicles? When compiling a SALUTE report be as accurate as possible.

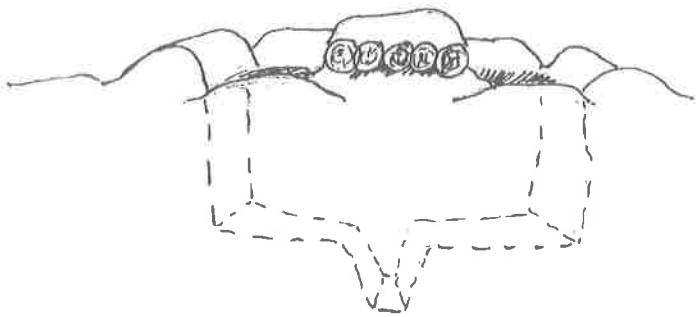
RECONNAISSANCE PATROLS, ZONE AND AREA

In general there are two types of reconnaissance patrols. The first is an area reconnaissance patrol. An area reconnaissance is when a patrol is observing a finite place, such as a house or a mission objective. This is best accomplished by dividing up the patrol and placing the members at different vantage points around the objective to observe. The patrol is then reassembled at a predetermined place and time.

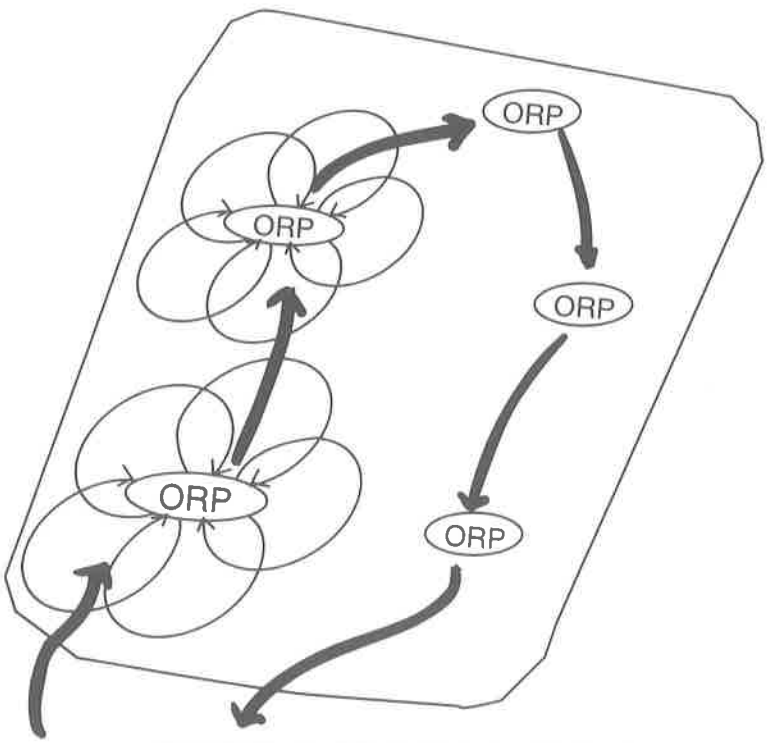
The second type of reconnaissance patrol is the zone reconnaissance patrol. This is when a patrol must examine a large area of terrain for enemy activity. There are three methods of conducting this type of reconnaissance patrol, they are the fan method, the converging routes method, and the successive sector method.

FAN METHOD

In the fan method the patrol leader selects several points (ORPs- objective rally points) spaced out within the zone he must patrol. When he comes to the first point he divides the patrol into three groups. Group one stays at the ORP while groups two and three begin walking in large rings around the



Ideal Fighting Position



Fan Method of Zone Reconnaissance

ORP looking for activity. The paths of the groups should look the outline of the petals on a flower. When the entire area has been examined the groups reassemble at the ORP and move off to the next preselected ORP and repeat the process. This is continued until the zone has been fully examined.

CONVERGING ROUTES

In the converging routes method the patrol leader selects one rendezvous point at the far end of the zone he is to examine. The patrol is then split into three separate elements, each with its own route to reconnaissance. Each of these groups makes their way along their route making smaller fans of their own as they go. Finally all three groups meet up at the rendezvous point and make their way back to friendly territory.

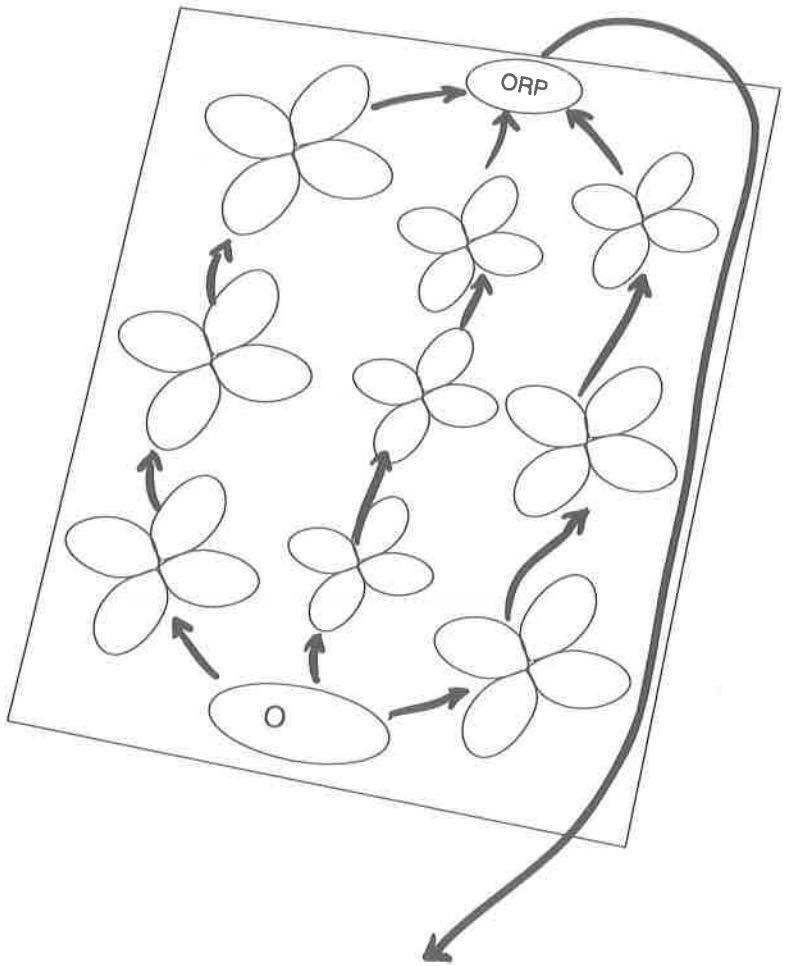
SUCCESSIVE SECTOR

In the successive sector method of zone reconnaissance the patrol leader selects two rows of ORPs within the zone, one going to the far end of the zone, the other coming back. The two rows should be spaced evenly from each other and the sides of the sector. The patrol then splits into three elements, each of which travels to the first ORP along a separate, and evenly spaced route. When they have all made it to the first ORP, then they split up again and travel to the second ORP. This is continued all the way up one half of the sector and back down the other.

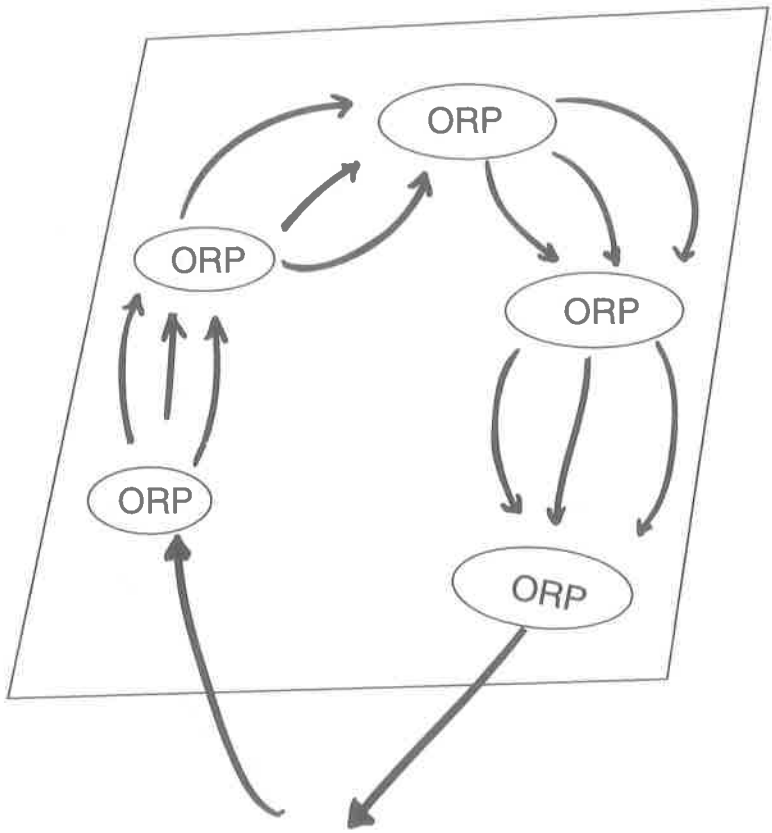
When on a reconnaissance patrol it is important to remember that you are not out to engage the enemy. You are out to remain undetected, and gather information. Dead men tell no tales, and if you are killed you have become worthless to your unit.

PATROL

A patrol is any sized unit sent out to perform a mission of either combat or reconnaissance. This section on patrolling is a guide on the necessities of serious patrolling. Patrolling is not just a walk in the woods, it is getting from one place to another, through hostile territory to perform a mission. It calls for



Converging Routes Zone Reconnaissance



Successive Sector Zone Reconnaissance

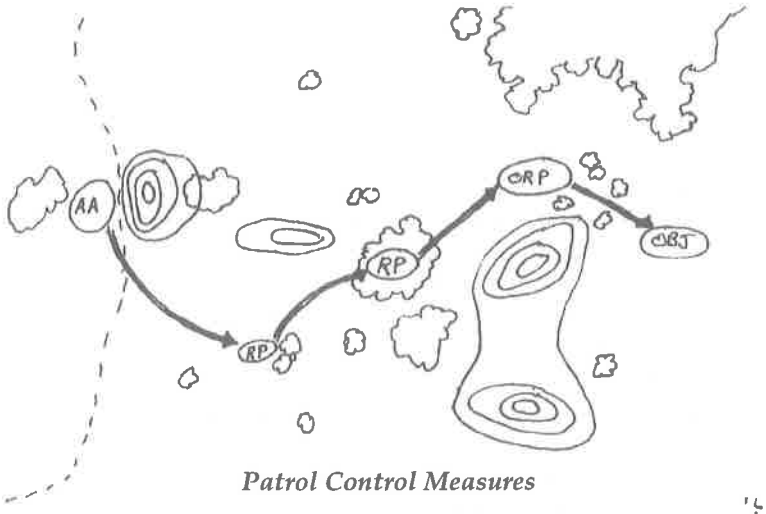
preplanned reactions to common situations that might be encountered.

CONTROL MEASURES

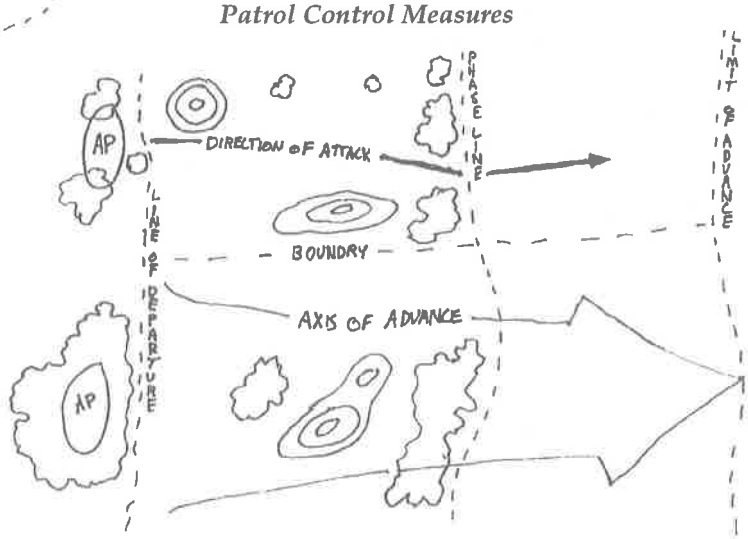
First off a few definitions should be set down. The first is the route, which is the course a unit must follow to get to a location. Next is the objective. This is the area or force that is to be occupied or destroyed. Rally points are various spots along the route that the unit will reassemble at if it is dispersed. These are designated by the patrol leader. The patrol will always reassemble at the most recently designated rally point. An objective rally point is the last rally point before the objective. An assembly area is an area where a unit prepares for future operations. It is within friendly lines and is where the patrol departs from. These are control measures that will be used by a patrol.

Other control measures will be used by smaller units in conjunction with a larger attack or more detailed patrol. The first of these is the line of departure, which is the line from which attacking forces will depart when initiating an attack. The attack position is a covered and concealed position just behind the line of departure. This is where the unit makes its final preparations and coordinations for the attack. The direction of attack is a specific route along which the center of mass of a unit will advance. Boundaries are limits to the left and right of a unit that separates its responsibilities from neighboring units in an attack. An axis of advance is a broadly defined route that is the general direction of attack. A phaseline is a linear feature across the axis of advance that is used in coordinating an attack, units report when they have reached phaselines to let leaders know of their progress.

A patrol, having planned its route must now adhere to some basic ideas of patrolling. Patrols must move on covered and concealed routes. Do not move directly forward from your concealed and defensive positions. Avoid danger areas and possible ambush sites. Adhere to camouflage, noise and light discipline. And, make contact with the smallest possible element so as not to get surprised or lose the ability to maneuver.



Patrol Control Measures



Attack Control Measures

MOVEMENT TECHNIQUES

Using the proper movement technique is an easy and important skill to master. Patrolling has three basic movement techniques, these are traveling, traveling overwatch, and bounding overwatch.

Each technique is used according to the likelihood of enemy contact. When in a patrolling formation keep about ten meters between team members, making sure that patrol members can see their team leaders. The team leaders must be able to see their squad leaders, and the patrol leader must be able to see the lead squad leader if he is not traveling with the lead squad.

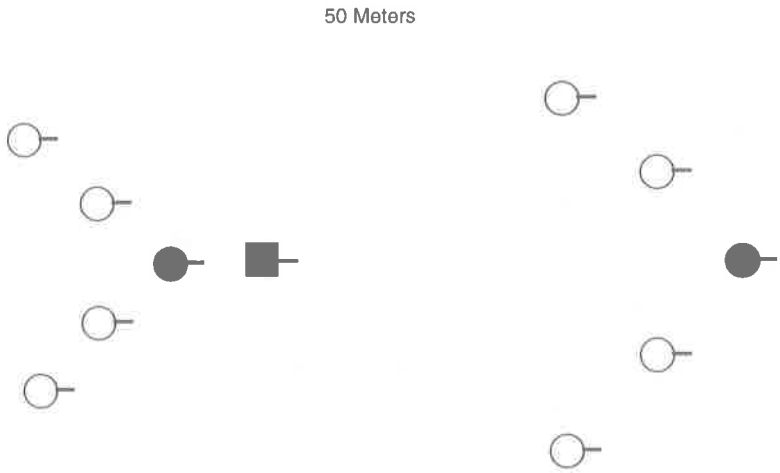
For the purpose of explaining the movement techniques, a twelve man example patrol will be used. The twelve man squad will be cut into two five man fire teams, each with its own leader. The fire teams will always travel in five man wedge formations with their leaders at the point of the wedge (as long as terrain or obstacles do not force them into single file). The eleventh man is the point man. The point man is not a trail-breaker, he moves out to the front on either side investigating sounds, checking for traps, and in general scouting around. The twelfth man is the patrol leader, who is responsible for, and in charge of the patrol.

TRAVELING

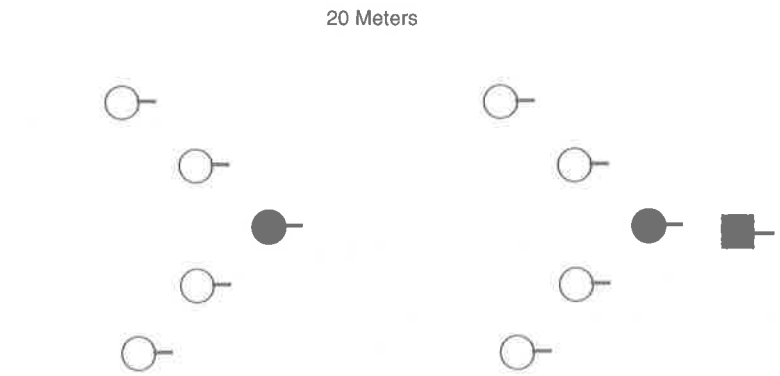
Traveling is used when speed is of the essence and contact with the enemy is not expected. The patrol leader travels with the lead fire team. The second fire team travels about twenty meters behind the first. Both teams are in their wedge formations.

TRAVELING OVERWATCH

Traveling overwatch is the movement technique that is used when enemy contact is possible. The patrol leader will travel with the rear team, which will maintain a fifty meter distance behind the lead team. In this way the patrol leader will lessen



Traveling Overwatch

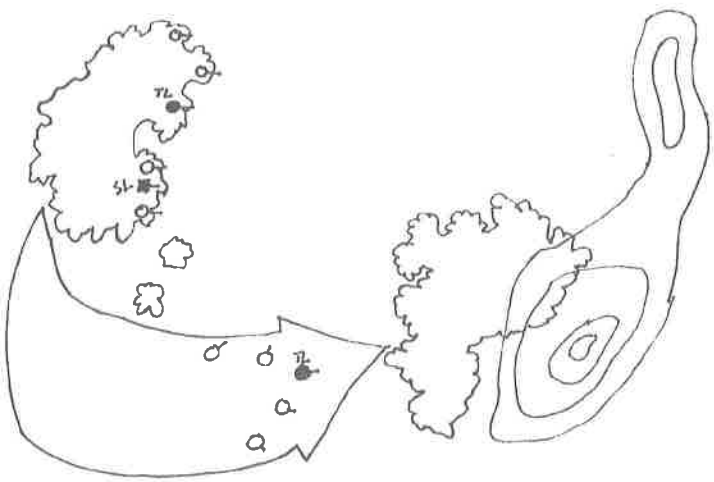


Traveling

his chance of becoming pinned down with the first team, and will be able to react with the second.

BOUNDING OVERWATCH

Bounding overwatch is used when contact is expected, or likely. In this technique the lead fire team takes up a position to cover the other as it moves forward to a predecided point. Then,



Bounding Overwatch

after the rear team has reached its destination it takes up a defensive position and allows the lead team to advance under its protection.

INFILTRATION AND EXFILTRATION

In some situations it may be necessary for a patrol to exit an area undetected, but none of the above techniques will allow for that. The techniques of infiltration, and exfiltration are used at these times. Infiltration is used to cross over into enemy lines undetected. A patrol will split up into one and two-man teams

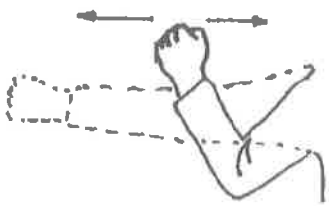
which cross the lines on their own to meet up at a predetermined location. In exfiltration a patrol is leaving enemy lines, and conducts itself in the same manner.

IMMEDIATE ACTION DRILLS

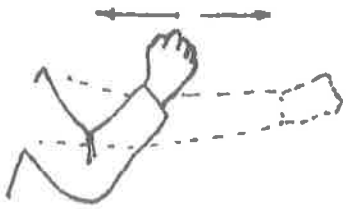
It is necessary to have certain prearranged signals and actions during a patrol to deal with any situation that might commonly arise. These are called immediate action drills. Some are initiated with a hand signal while others are initiated with a spoken command.

FREEZE

The most common immediate action drill is freeze. This is a raised fist. When this signal is given everyone should get down to the ground, weapons pointing to either side, and at the ready. The patrol leader will then make an appropriate decision about what to do depending on the threat.



Hasty Ambush...Left



Hasty Ambush...Right

Freeze

Enemy in Sight

All Clear

HASTY AMBUSH

Hasty ambush is a signal given when an enemy patrol is seen approaching, has not seen you, and is a candidate for an ambush. The hasty ambush signal is a clenched fist pumped out to either the right or the left side. The patrol is to take cover in positions that will allow them to see the enemy as they pass, in the direction indicated by the patrol leader's fist. The patrol leader will initiate the ambush if he decides to by firing and shouting fire. If not, the patrol will continue once the enemy has left the area.

AIR ATTACK

The drill for an air attack is to first use the freeze signal when an aircraft is spotted or heard. If spotted by the aircraft, the team is to lie flat, perpendicular to the aircraft's direction of attack, presenting a shallow target. Fire is then directed at the aircraft by all team members.

IMMEDIATE ASSAULT

Immediate assault is used when the team surprises an enemy group at close range that is either the same size or smaller than they are. The element of the patrol that encounters the enemy shouts "contact right" or any other direction that the enemy is and begins firing. The rest of the patrol immediately joins in the attack.

REACT TO AMBUSH

If the patrol finds itself in an ambush the drill is for the men who are trapped in the kill zone to immediately return fire and exit the kill zone. They should pop smoke, and use hand grenades to attempt to break contact. The men who are not in the kill zone should immediately give supporting fire to those who are trying to escape. When the kill zone is evacuated the entire patrol breaks contact and reorganizes at the last designated rally point.

REACT TO SNIPER

If a sniper is encountered the patrol should return fire in the direction of the sniper. Firing and maneuvering, the patrol should then attempt to break contact with the sniper.

REACT TO INDIRECT FIRE

If indirect fire is encountered (artillery or mortars) the patrol leader should lead his men at a run out of the impact area. Do not attempt to take cover. Exiting the area makes the patrol harder to hit and pin down. Remember that the average mortar round is in the air for at least 20 seconds after being fired. Add that to the time used to compute the data, and for the forward observers corrections, and you've got yourself a pretty hefty lead.

CROSS DANGER AREA

Crossing danger areas is a final drill that will be covered. A danger area is a road or bridge, or any other place where you are at a tactical disadvantage or may be surprised. When coming to a danger area, the point man is sent to reconnaissance the near side. Once that is done, the patrol is positioned to cover the point man as he crosses and reconnoiters the far side. The point man then signals an all clear, and the patrol crosses one man at a time.

PATROL BASES

Sometimes in the course of a patrol it becomes necessary to halt for long periods of time. Patrol bases are created at these times. They are nothing more than an extended stopping point, but must be chosen, and prepared carefully, because the isolated patrol will be in them for a long period of time. When selecting a patrol base there are several concepts that must be adhered to. A patrol should choose a place that is of little tactical value, difficult to traverse, covered in vegetation, and far from human habitation. Being near a water source is a good idea also. The patrol should avoid built up areas, areas where the enemy is thought to be, roads, trails, ridges, mountain peaks, and wet areas. In short the patrol is in hiding, and should at-

tempt to make a base in a place where no one will ever go. Before leading a patrol to a patrol base site, the patrol leader should go ahead with one or two other men and reconnoiter the area.

For security measures the patrol base should do the following when troop strength permits. It should set up observation and listening posts on avenues of approach with good communications to them. Ensure that the patrol base is defendable and has multiple routes of escape. Make sure that there is a rotation of rest going on, and that necessary people are always awake. Enforce noise, light, and camouflage discipline. Never build a fire at night, and avoid building one during the day.

A patrol base should never be occupied for more than twenty-four hours. If it is discovered by any civilians they should be detained until departure. Retrievable mines such as claymores should be used when available.

When a patrol nears an objective it should do what is known as a leader reconnaissance. The patrol halts before reaching the objective, and takes cover. The patrol leader then goes ahead with a few of his subordinates and observes the objective. Using these observations he then adjusts or formulates his final plan of attack. Before leaving the patrol leader should place someone in charge with information on what to do should he not return, or if they come under attack.

HANDLE DEAD, WOUNDED AND PRISONERS

Handling the dead wounded and prisoners during a patrol is a task that will surely come up. As for the wounded, they must be either classed as walking wounded or seriously wounded. Walking wounded may either accompany the patrol on the rest of the mission, or find their way back to friendly lines. Seriously wounded should be returned to friendly lines with help or left for later pickup with a guard. Friendly dead should be left for later pickup without a guard.

Prisoners should be bound, gagged, and blindfolded. They should then either be left for later pickup with a guard or escorted back to friendly lines. Enemy dead should be searched for documents, weapons or usable gear.

BREAK CONTACT

When a patrol is severely out-gunned or surprised the best choice is often to break contact. Breaking contact is getting away from the enemy as quickly as possible. To break contact throw as many smoke and fragmentation grenades as needed at one time towards the enemy. Then retreat at a fast pace while shooting to the last rally point to regroup. The patrol leader should be the one to initiate the breaking of contact with the verbal command "break contact".

OFFENSE

The basic concept behind the offensive is to attack and destroy. This is done by bringing firepower to bear on the objective in a way that it is hard for the enemy to defend itself. It is extremely important that you understand how to accomplish this task. Fortunately there is a simple formula for engaging the enemy.

First, when coming to grips with the foe a unit must attempt to bring its force on line facing the enemy. This is to ensure the unit can bring all its firepower to bear and that no one is too far behind or ahead of anyone else on the firing line. This is not to say the unit should line up like an army from the Napoleonic wars, or that it should unduly expose itself in coming on line. It is not a problem if some troops bound short distances ahead while being covered by their comrades. There should be a good distance between men, and full use of all cover should be made. A small force should be kept in reserve to shore up any holes in the line or exploit enemy weaknesses.

If a unit is doing a surprise raid on the enemy, its troops should then sweep across the objective. They should be kept on line as much as possible and is prudent as they destroy the enemy in the objective. It is important that no enemy get behind the line, and that any holes in the line are shored up.

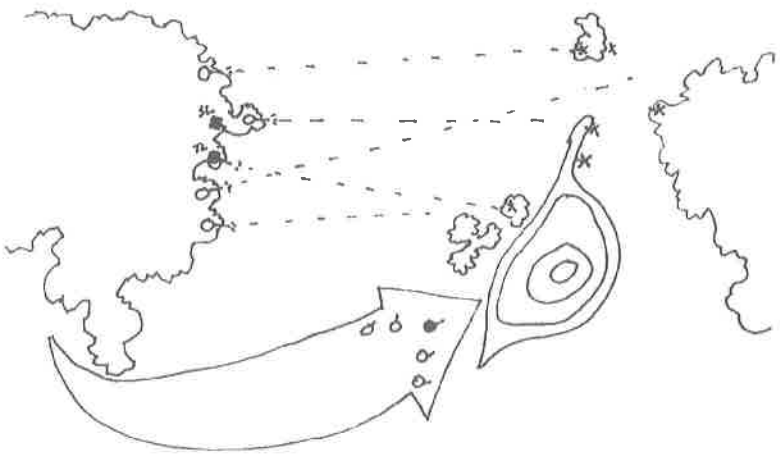
When the attack has occurred out of chance, such as in an immediate assault, the unit must attempt to either bring a reserve component, or a part of the front which is not engaged around the side of the enemy and attack the enemy's flank. This

is, of course during the time the rest of the unit is advancing or coming on line.

FIRE AND MANEUVER

The best way to close the distance between attacking troops and the enemy is called fire and maneuver. The attacking unit becomes two elements. The first element takes up a firing position and lays down suppressive fire on the enemy, while the second element advances to a firing position of its own. The roles are then reversed, and the second element covers the advance of the first to a firing position ahead of itself. This continues until the enemy has become sufficiently close.

Individual soldiers will want to crawl or make short rushes forward while covered by their comrades. A crawl should be done with the belly and head against the ground. A rush should last no more than three to five seconds, and should be directed straight for more cover.



Fire and Maneuver

SINGLE RUSH

A single rush can be used in some situations as a final assault. The attacking unit, having advanced very close to the defenders, and having suppressed them may jump up, remaining on line and charging across the objective, eliminating the enemy. The single rush may also be used at certain critical times during an assault when the enemy is not suppressed. It may be used when the attackers are coming under heavy indirect fire, when there is no cover, or when the attackers are being hit by hand grenades from the enemy lines.

URBAN ASSAULT

Attacking an urban environment is a tricky situation. It is one of the most casualty-producing environments to attempt to assault. When attacking an urban environment always try to have three to one odds in your favor. Make sure you have an ample supply of fragmentation grenades on hand. The following is a list of pointers and guidelines that are simply basic to survival when attempting to attack an urban environment. Keep these in mind as well as the defensive tips from section 3.2.

When entering an enemy held building always throw a fragmentation grenade or two in first. When entering, come in firing and at a gallop. Shoot into the corners, dark areas, areas of cover, and anything that looks remotely human, dead or alive.

When two or more soldiers are clearing a room ensure they do not cross each other's fields of fire. Once a room is cleared mark it with an "X" on the door so others will know it has been cleared.

Avoid entering buildings through doors and windows when other means are possible. Try to blast or bash your way through a wall, or enter a place where a recent explosion has damaged the building. This will reduce the risk of setting off a booby trap. If possible enter through the top floor or roof of a building when attacking. It will give you an advantage to fight your way down instead of up.

When moving around and choosing a place to fire from try to avoid backgrounds that will silhouette you. Examples are the sky, or a monotone, or bright objects. Try to choose a posi-

tion that has a built up rear that will break up your outline. Remember, sewers and water drainage pipes can be traversed by you, as well as the enemy. Duck down when crossing under first floor windows, and hop when crossing basement floor windows.

ARMOR

Enemy armor will always be a trouble to go up against for an infantry type unit of volunteers. There is the psychological factor of a huge armored beast, and the very real factors that it is bulletproof and that it will be armed to the teeth. Armor, however, is very vulnerable to those who know how to deal with it. If it attacks an infantry unit in woods, or in a city without infantry support of its own, it will always lose. Armor is blind, and infantry can attack it like a swarm of ants when it gets slowed down.

TANKS

Tanks are the most vulnerable from behind, on the top behind the turret, and in their treads. In the back they are lightly armored and a rocket launcher or fifty-caliber (which is one bad mamma) could damage the engine.

Several ways to get behind an armored vehicle to attack it are to dig a hole and let it roll over you, or hide undetected in a building, tree, or other hiding place. When hiding make sure that you are invisible to the naked eye, as well as any thermal imaging devices. Pop up behind the vehicle, and let it have it.

A way to engage the treads of an armored vehicle is to concentrate the fire of thirty caliber and above machine guns on them. You can also use a high explosive charge, or a mine. Finally the treads are very vulnerable to rocket fire. Hitting the treads is not going to kill an armored vehicle, but it will stop it and make it more vulnerable to the final attack, which is going to be described.

The top of an armored tank, just behind the turret is where most modern tanks vent their exhaust through a large grill. Some do it directly in the rear and that spot should be attacked if this is the case. Where the exhaust exits the vehicle is often

the only place a fire bomb will do any damage on a moving tank. A molatov cocktail will shatter, dripping the flaming gasoline into the engine compartment. Hoses and wiring will burn, immobilizing the tank. Now you can either light a big fire under the tank, on top of the tank or both.

ARMORED PERSONNEL CARRIERS

Armored personnel carriers are a form of armored vehicle you are most likely to encounter. They will either be just like small tanks or devoted battle taxis with little armament. Neither type should be attacked from the front (same goes for tanks) if possible. APCs are usually much less armored than tanks and their sides and rear are sometimes vulnerable to the concentrated fire of thirty caliber weapons and above. A rocket hit will definitely put one of these out of commission. Some of these, such as the American M113 have their exhaust grills in front, because the engine is in front to provide added protection.

In general, attacking armored vehicles should be a preplanned operation, especially if you are short of heavy duty weapons. The most vulnerable armored vehicles are the unmanned ones, so whenever possible get them while they are parked. At night the crews may opt to sleep inside their tanks, especially if it is cold out. The people on guard duty in them will have access to the thermal, and night sights which will be mounted in the front of the turrets. They won't, however, be able to hear very well. Always try to approach parked vehicles from the rear. For instructions on how to build an armor-defeating shaped charge refer to the *Demolition* section of this chapter.

SNIPING

The basic idea behind sniping is shooting a person from a long distance. Good cover and concealment are secondary to shooting ability, but are also important. A sniper wants to hide and wait for either an assigned target, an important target, or a target of opportunity depending on his mission. He must re-

sist the temptation to spring his trap too soon. A sniper is a combination of the right man, the right weapon, and the right skills.

The chapter on personal weapons explains the fundamentals of rifle marksmanship. If after weeks of practice you still cannot hit targets consistently at ranges of at least three hundred meters, don't bother trying to become a sniper. Most firefights occur at ranges under one hundred meters, so don't consider yourself worthless either.

Remaining hidden is of paramount importance to the sniper. He will usually be alone or with only one other man, his spotter. Detection by enemy forces will spell doom. The sniper must be a master of camouflage. This involves not using too much, or too little foliage for cover. The sniper must know when to change foliage, because it is becoming dead, and not to use oddball greenery. He must completely blend in at distances of five meters or more. In addition to natural camouflage a sniper may use a creep suit aid him. To this he should attach surrounding foliage, to aid in the deception.

CREEP SUITS

A creep suit is a simple item to build. It is merely strips of burlap, about two to three inches wide attached to clothing. A set of BDUs (battle dress uniform, camouflage uniform), a flight suit or coveralls may be used along with a bush hat, and boots. The burlap strips can be taken from sand bags, feed bags, or whatever else is handy. There are two methods of attaching the strips. The first is with fabric glue. The second is by cutting two parallel slits of about one and a half inches in length, and then running a strip in one and out the other, then tying the ends in a square knot. That process is repeated for every strip affixed.

As a general rule, the strips on the front side should be quite a bit shorter than the ones on the back. This is to allow for crawling without getting hung up. Elbows and knees should have padding sewn into them. The strips on the hat should blend in with the strips on the blouse, and the strips on the blouse with the strips on the pants. There should be no holes in the coverage

of the suit. The boots and any other gear should at least have burlap wrapped around them.

Finally the creep suit should be washed with an entire bottle of fabric softener, because burlap is the most irritating fabric on earth. Don't be alarmed at how much your suit sheds during washing or use, the more worn it is the more plantlike it looks. It is okay to use the dryer on it also. You will be plagued with burlap lint balls for a few washings even after you remove the giants that form during the wash.

The same process can be used to create a blind or tarp for the sniper to lay under. This will give him and his observer additional concealment. Take some netting of some sort, and tie camouflage strips to it. Place this over top of both the sniper and the spotter. The sniper should shoot though the netting.

CONCEPTS

The sniper must choose a rifle that has the proper ballistics. One with relatively good stopping power at long ranges and a relatively flat trajectory. He should know how the wind will affect his shots, and how much bullet drop there will be at each range. He needs to be able to estimate wind velocity, and even understand how round temperature (rounds that have been in the sun will hit slightly higher than others), lighting and shadows will affect his shots. A sniper should have a good scope, but it is not a necessity. Smokeless ammo should be used if available, and tracers should never be used.

SPOTTERS

A sniper should also take along a spotter. A spotter is a person who observes the sniper's shots and offers corrections. The two should train together, the spotter acting as a coach. The spotter should observe the shots made by the sniper through a spotting scope or binoculars. No matter what type optics are used, they should be stable and well supported, preferably on a tripod. When observing through optics the spotter will either be able to see where the round strikes through damage that it does, or on warmer days the spotter will be able to see a trail that is made by the bullet as it passes through hot moist air.

CONDUCT OF MISSIONS

Snipers should operate like good hunters as they travel to where they plan to set up their position. They should stop, look, and listen often. A sniper will often have to crawl, undetected for long distances until he gets close enough to his target to get a sure hit. He should be willing to do this, and practice it often. Once a sniper has located the position he wants to use, he should ensure that the area is secure. There should be a good escape route, good fields of fire, good cover, and good concealment. If possible the sniper should physically pace off distances in his field of fire, piling rocks or making some other sign every fifty meters so that he can estimate ranges. This will not always be possible so ranges to certain objects within the field of fire should be guesstimated in advance and remembered.

When a mission is over the spotter should advance and search the bodies if possible while the sniper covers. In most cases the two should just vacate the area as soon as possible and return to friendly lines.

DEMOLITIONS

In this section on demolitions the main focus will be on handling explosives as opposed to creating them. The chemistry is for a later chapter. The information in this section will inform you of how to handle and use explosives that the government uses as well as homemade ones. Descriptions will also include novel ways of detonating explosives without the use of blasting caps.

First a little explosive theory. Explosions are caused when an explosive material rapidly oxidizes (burns, interacts with oxygen atoms) and becomes a gas. The explosive force is the result of this gas expanding and pushing things out of its way. The heat results from the oxidization process. The difference between an explosive and any other item that burns, is that it happens so fast. It happens so fast because the explosive itself contains the oxygen it needs to oxidize. Normal burning requires the oxygen to be taken from the air which can only happen at a certain rate.

BLASTING CAPS

Some explosives are very powerful, but require a large amount of energy to get them to go off. This energy often comes in the form of another explosive. In this case the former is known as a secondary explosive and the latter as a primary explosive. Blasting caps are a primary explosive used to detonate secondary explosives. The advantage of a setup like this is that you can safely carry a large amount of explosives with you without fear of it going off, while carrying only a small amount of unstable explosive to make the detonation possible.

DETONATION CORD

Another basic to get a grip on is detonation cord. Det cord (detonation cord) is a secondary explosive in itself. It is a long, plastic looking cord that is used as a kind of instantaneous fuse in many blasting operations. The idea is to use it like a long distance electrical detonator. However, instead of a current being sent down a wire to set off an electrical blasting cap, the entire cord blows up all the way from the person doing the detonation to the explosive setting it off. In order to use det cord stick one end of it into a blasting cap and crimp the edges of the cap to hold it into place. Now stick the blasting cap into the explosive. If using a hard explosive like dynamite or TNT, carve a hole into it with a wooden object or the handle of a set of crimpers, large enough for the blasting cap to fit into. If using a soft type of explosive, just stick the crimped blasting cap into it.

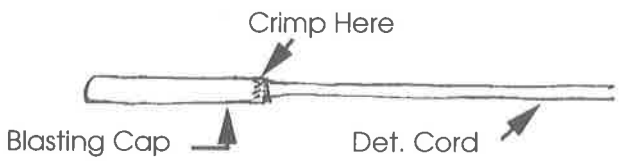
Hard explosives may also be laced when a blasting cap is not available. This is done by boring several holes through the explosive, and then weaving the det cord through it several times. Soft explosives (plastic explosive, C4) may be detonated by just the cord also. A double or multiple knot is tied at the end where the blasting cap would have been and then buried deep inside the soft explosive.

Only one block of TNT or stick of dynamite must be fused to go off when several are used in a bundle. The explosion of one will set the rest off. The detonated explosive will act as a blasting cap would have for the rest of the blocks and sticks.

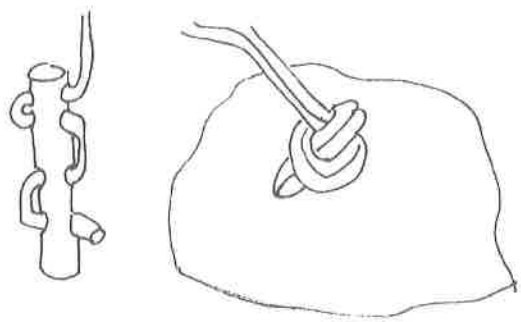
After one end of the det cord is properly mated with its explosive, the rest of it is unraveled while walking a safe distance away. The other end must now be exploded in some manner. The military uses a small fuse igniting device that fits over the end of the cord much like a blasting cap. After pulling a pin out of the device it will give you about five seconds before it sets off the det cord, and the explosive to which it leads. Since you may not have one of these, you could use some field expedient method of getting the det cord to explode. An example is putting another blasting cap on the cord, then heating that, or hitting it with a rock.

FUSES

Regular fuse can be used in much the same way as det cord. Fusing is nothing more than a trail of black powder that is protected from the elements, and movable. It can be crimped into a blasting cap and lit to set off any explosive. It can also be used to detonate most powdery explosives all by itself. Regular



Det cord crimped into blasting cap



Det cord laced into dynamite and plastic explosive

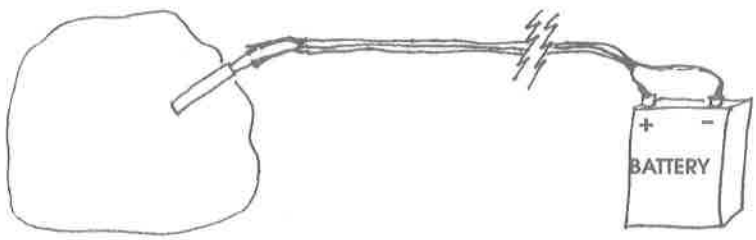
fuse is not like det cord in that it will not explode. It will never set off dynamite, plastic explosives, TNT or any other secondary explosive by itself. It is a time delay and an initiator for primary explosives which may then be used to set off secondary explosives.

ELECTRICAL DETONATION

Electrical detonation is when an electrical current is used to set off an electrical blasting cap, or to generate enough heat to set off an explosive. When using an electrical blasting cap hook it up to some appropriately long wiring. Stick it into an explosive just the same as you would a regular blasting cap. Then touch the ends of the wire to the terminals on a car battery. If you are using a double wire that has a male receptacle on it, plug it into a wall socket (it will blow a fuse). The military uses little generating devices, but any current will just about do the job.

EXPEDIENT SPARK GENERATORS

When using explosives that are set off by a spark, there are other methods of electrical detonation that do not require a blasting cap. Wiring can be hooked up to a model rocket engine



Electrical blasting cap attached to a car battery

igniter that can be found at any hobby store. Be sure the black substance on the igniter is in contact with the explosive, the igniter is not crossing itself, and the igniter is touching nothing metal. When a current is run through the igniter (a nine volt battery will do the trick at short distances) it will set off the

explosive. If you can't obtain engine igniters, then some types of Christmas lights will work as well. Just snip the cord about two inches from the bulb on both sides of it. Next strip both the wire leads, and break the glass from around the filament, without damaging it. A current applied to the leads will cause the filament to flame out instantly. It can be used in exactly the same way as rocket igniters.

EXPEDIENT BLASTING CAPS

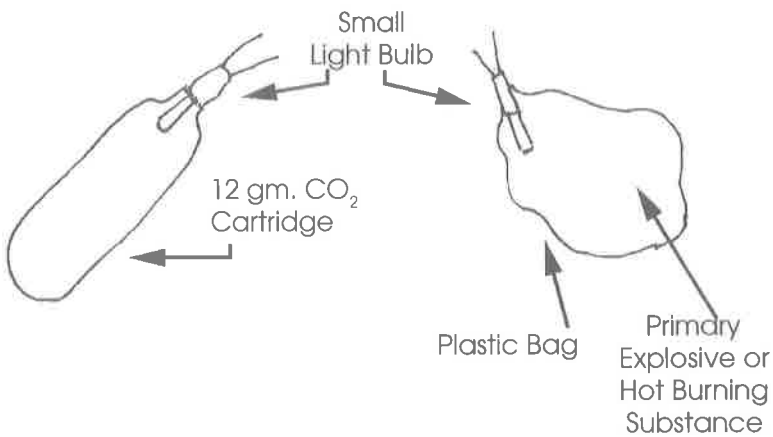
Most explosives are just fine and dandy, if there are some blasting caps to be had. If not, there appears to be a problem. They could probably be stolen, along with some explosives from a quarry, or a construction site where blasting is being done. Rumor has it they are present in automobile airbag deployment systems. Making one, however, can be a simple task if one understands the theory behind them. They are merely an explosive that is used to set off another explosive by transferring enough energy to create a chain reaction. The ideas that are about to be put forth may require some tinkering depending on the explosive being used. A little experimentation should lead to an effective way of causing a detonation.

One method of building a blasting cap is to drill, or saw the capped end of a used CO_2 cartridge until there is a hole big enough to pour some gunpowder into it. You don't want the hole to be too big, or it will work more like a rocket engine than a blasting cap. Then fill the cartridge with gunpowder and stick a fuse, or a homemade electrical detonating device in the end. Now, the CO_2 cartridge can be used like an oversized blasting cap. When experimenting with this, don't be fooled. The CO_2 cartridge explodes in a pretty hefty way itself, so make sure that you use enough secondary explosive to be able to tell if it is going off.

A more reliable detonator can be made using the same process, but with better primary explosives. Several formulas for primary explosives are given in chapter 10. Using more powerful primary explosives means that the size of the detonator can be reduced. A rifle shell can be filled, and used instead of a CO_2 cartridge.

Another way of getting a secondary explosive to go off is by applying extreme heat. Some types of explosives will actually burn and not explode, so when the application of extreme heat is called for, it means extreme heat. As an example of extreme heat being applied take plastic explosives. Take a mound of this stuff and stick your finger in it creating a deep cavity. Fill the cavity with gunpowder, and stick a fuse into it. Now smooth over the gun powder, covering it up slightly with the plastic explosive. When the fuse is lit and the gun powder begins to burn it should generate a lot of heat. The gun powder won't explode because it needs to be in an enclosed container to do that. It will generate large spitting flames that may set off the explosive, depending on what it is.

To make a more easily transportable type of extreme heat detonator, pour the correct amount of gunpowder into a plastic bag that experimentation has determined is necessary. Next stick one of the homemade electrical sparking devices inside the bag with the wire leads hanging out. Remove as much of the air as is feasible from the bag and then tape it closed. To use it all poke a hole in the plastic explosives, drop in the detonator, and smooth it over. A fuse can also be used instead of an electrical sparking device.



Two homemade electrical blasting caps

SHAPED CHARGES

Shaped charges are charges that have been molded to a certain position to increase their destructive capabilities in one direction. They employ a charge, a mold to hold them in place, and standoff, which is spacing between the charge and the target to optimize its effects. There are expedient ways of manufacturing shaped charges that will punch holes in the engine compartments of tanks, or aid in cutting during demolitions. Shaped charges work by using an angle on the cutting side of the explosive that increases the amount of surface area facing the target, and directs the explosive force from that side to one spot.

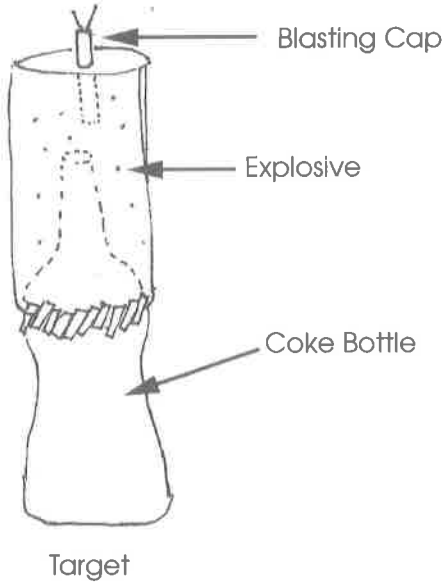
Here is a good method of making an armor-defeating shaped charge. Stop up the end of an ordinary full sized coke bottle. Fit a six-inch cylinder made of anything (cardboard, aluminum, as long as it is a cylinder that fits over the bottle) over the top of the bottle and slide it down until the bottom of it rests on the widest part of the coke bottle. Fasten the cylinder in place, and fill it with plastic explosive or some other castable explosive. All you have to do now is insert a blasting cap and fuse it. To use this device set the coke bottle right side up on the target, fasten it down, and light the fuse. The bottle acts as the standoffs, and the neck of the bottle as the mold for the charge. It will penetrate up to three inches of armor.

For a simple shape charge that aids in cutting you need half of a two-inch diameter pipe, or the metal corner brace from a house that has siding. Take a block of explosives that is two inches high, as wide as the molding pieces, and as long as the molding piece is long. Cut out the shape of the molding piece from the explosives, and then insert the molding piece into that space, obtuse angle out. For standoffs you can attach anything you want around the sides of the explosives. The correct amount of standoffs is two inches for a steel angle or aluminum pipe half, one inch for a copper pipe half, and five and a half inches for an aluminum angle.

CONTAINING EXPLOSIVES

Some explosives need to be in an enclosed container to explode. Among those that do are gunpowder and certain types

of homemade plastic, and powder explosives. When a container is called for, a pipe with sealed ends will do. A can that holds a liquid, such as condensed milk will also do. Just poke a hole in the lid large enough to let the fluid out and the explosive in. Putting any kind of explosive into a container is a great way to make a hand grenade. Nails can be taped around the outside for added fragmentation.



Coke bottle shaped charge

THE DEMOLITIONS CAMPAIGN

When doing demolitions, don't just run to some area of town and throw bombs around. Every structure you destroy should be part of an overall plan. Don't destroy things just because you can. Before any demolition work, take a look at what it is you have to destroy. You should figure in advance how much explosives it will take to do the job, and where they should be placed. The whole operation should be preplanned from start to finish. Always allow yourself enough time to get away, and at least one escape route.

TAMPING

Tamping an explosive is a process which aids its effectiveness. An untamped explosive allows much of its explosive force to escape without doing any work to the structure you are attempting to destroy. Tamping is placing sandbags, logs, or any other heavy barrier object on top of and around an explosive. Items are placed over the explosive everywhere except between the explosive and the structure you are destroying. The process stops the escape of some of the explosive force to the air, and makes it do work on the structure instead.

CUTTING FORMULAS

Most structures you will have to destroy will either be made of timber or steel and C4 or TNT will probably be used. In the following, if the formula is for using C4 when cutting through individual members, and you are using TNT just add one third more explosive, if the reverse is true then remove one quarter. If you do not intend to tamp the explosive or just want to be sure, add one third more explosive than required after computing the final product.

For cutting an isolated steel beam the formula for TNT is the following where P equals pounds of TNT and D equals the diameter of the beam in inches.

P=(DD)

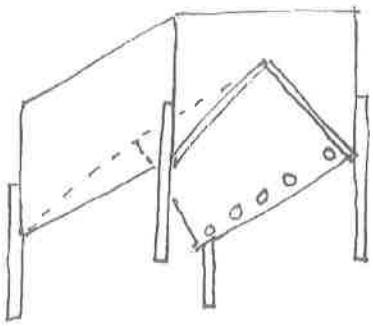
When cutting a steel part of a structure using TNT first compute the area in inches of the item to be cut. In the following formula A equals the area and P equals the pounds of TNT needed.

P=3/8A

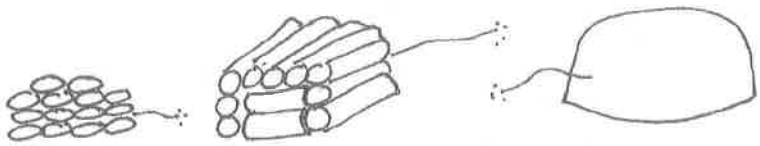
When cutting trees or timber there are two formulas that may be used. In the first formula C is the circumference in feet of the wood, P equals pounds of C4. In the second formula D equals the diameter of the wood in inches and P equals the pounds of C4.

P=(CCC)/30

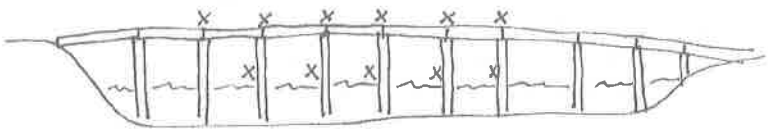
P=DD/250



A shaped charge for cutting



Tamping with sandbags, logs, and dirt



Placing charges on a cantilever bridge

As a rule of thumb, use about one pound of explosive to destroy a train rail. Place the charge in the groove on the side of the rail. If possible place another charge on the other side of the rail in the other groove.

DESTROYING BUILDINGS

When trying to destroy a building, first determine its weak points. A weak point is where the building is handling an undue amount of stress. It is hard for a beginner with no knowledge of engineering to determine this. These weak points must then be exploited with the proper amounts of explosive. If you must destroy a building, and do not have a manual on how to do it handy, you should probably stick to arson.

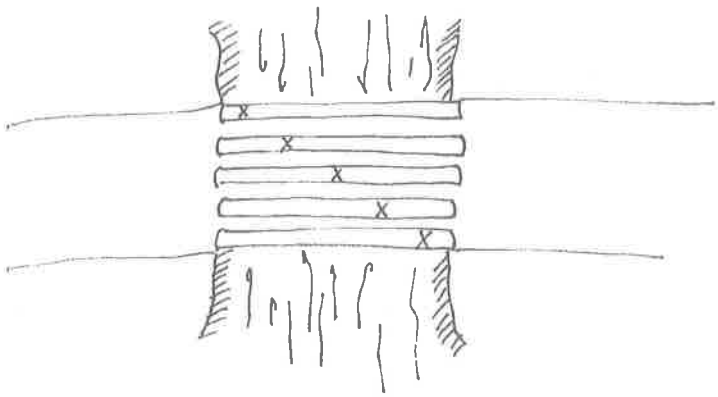
DESTROYING BRIDGES

Destroying bridges is a process like destroying buildings. It requires a knowledge of where to stick the explosives as well as how much to use. Fortunately there are set types of bridges and ways to destroy them. Examine the diagrams, decide which type of bridge you are dealing with, then note the placement of explosives. Check out the bridges in advance to determine how much explosive will be needed.

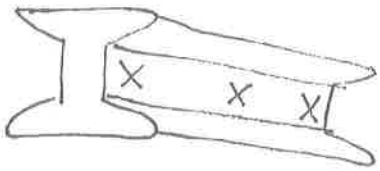
ACQUISITION OF MILITARY EQUIPMENT

In this section we are talking about the theft of military equipment from military bases. Sounds hard? Well it isn't. My explaining how to accomplish it is not to be considered a wish that you should go out and do it today. I don't believe that the military is oppressing any of us at this time in a way that would warrant our stealing from it to defend ourselves. The future is a different matter. The militaries of almost every other country in the world have oppressed their citizenry at one time or another. It could happen here.

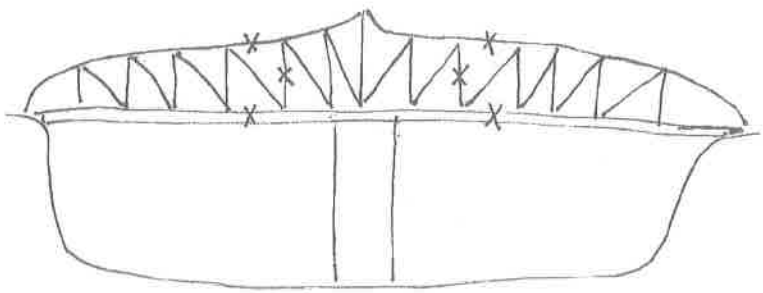
Most military bases are open to the public during the day and night. These are called open posts. They are not the fort like encampments you would imagine them to be. Often they are spread for miles, with some billets so isolated they cannot be seen from the rest of the post.



Placing charges on a slab bridge



Placing charges to cut an I-Beam



Placing charges on a railroad truss bridge

A typical base will have many different motor pools (parking lots), one for about each battalion that is there. It will have billets for the lower enlisted which house anywhere from a platoon to a battalion. There will be a shopping area where the PX (post exchange) and related stores are located. A post will have a section that appears to be an affluent suburb where the top brass live, and a separate section for captains and below, including some NCOs (upper echelon of enlisted men, noncommissioned officers). Posts will have firing ranges, and some impact ranges for artillery. Some posts will have bunkers containing war stocks of ammo, these will be located by a train track if one is present. A post may have an air field. If trainees are present they will be located in a separate section of the post. And finally, no post is complete without an MP station.

Any one of the above locations is a potential gold mine of gear and fire power for the team with a little bravado and true grit. Certain areas, such as the MP station should, however be avoided if you aren't looking for a gunfight. Others are just too hard to enter.

MOTOR POOLS

First, and easiest is the motor pool. A typical motor pool is paved, surrounded by a high nonelectrical fence, has several storage sheds, or garages, and several rows of vehicles or cannons. A gate on a motor pool is usually only locked with a pad lock and a chain. If live ammo, and firearms are not present in the motor pool there will not be an armed guard. The NCOIC (noncommissioned officer in charge) of the billets that the motor pool supports will check on the locks in the motor pool once every hour or so. He will be punctual so wait for him to come back a couple of times to get down his routine. Some motor pools are nowhere near the billets for the unit they support, these are the ones that should be tried for and make sure it is done at night.

For the mission, know how often the NCOIC checks the locks, and make sure there is at least fifteen minutes to make an escape. Take a set of bolt cutters for each man who is going on the mission. Have every man dress appropriately. Depend-

ing on what state of war there is between the organization and the government, a weapon should be considered. Have a prearranged time for a vehicle to perform a pick up, so a suspicious vehicle is not left parked at the motor pool. Make an escape plan for all contingencies. It is better to clip a hole in a remote portion of the fence around the motor pool than to clip the lock on the gate if you are going for equipment instead of vehicles. Once inside, remember that the storage shacks will each have a lock on them, and so will each of the vehicles.

Inside the storage shacks, equipment will include all manner of items a military unit uses. Most of the shacks are designated by platoon and will contain items pertaining to that platoon's function. An infantry platoon may contain communications gear, map reading equipment, personal clothing, weapons mounts, tools, camouflage netting, stoves, manuals and other equipment. A mortar platoon shack will contain the same items as above, but also FDC and mortar equipment. There will be plotting boards, range tables, mortar sights, base plates, bipods, etc.

The vehicles will contain high quality communications gear, fire extinguishers, sighting equipment, and various other items. Some vehicles will have their radios locked in with padlocks. If acquiring radios, be sure to locate the back packs and antennae systems (which will be together) that will enable them to be used outside of the vehicles.

BILLETS

Now, for billets. A typical company, or battalion sized billet will have its own arms room. This is where the weapons, night vision devices, bayonets, and ammo are stored. A platoon-sized billet looks like a shack and contains more items of risk than benefit. The arms room for a group of platoon-sized billets will be in a central location.

The larger billets will generally have two or more floors and a basement. The ground level floor will contain offices, dayrooms, and a guard at a desk by each doorway. In addition to this it will have one man monitoring an alarm device, and an NCOIC who will generally have that man in his sight. The up-

per floors will have the rooms for the troops. The basement will contain arms rooms and maybe a weight room.

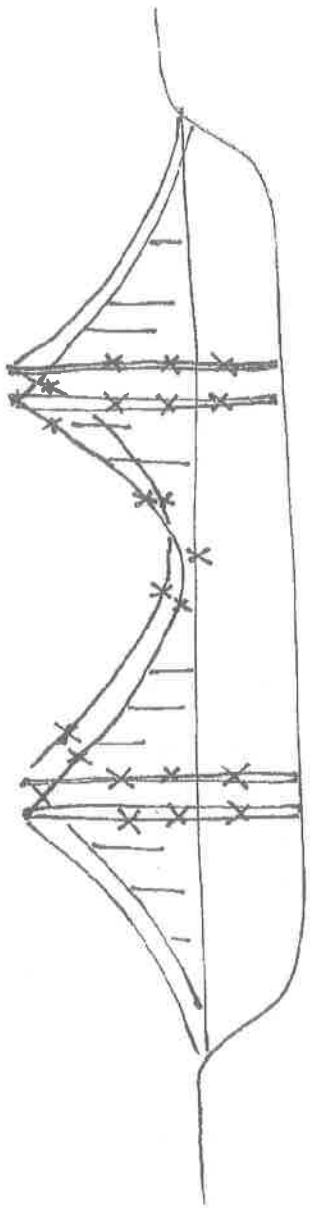
When dealing with a billet the object is to get into the arms room without setting off the alarm, or alerting any of the troops on the upper floors. All of this must be done in the dead of the night. To do this you are going to have to get control of all of the men watching the desks, the NCOIC, and the alarm monitor. This must be done quickly and quietly. Take all of the desk watchers to an office and lock them up under guard. Have one man stay with the alarm monitor to reset the alarm manually when the arms room is opened. Make the NCOIC open the arms room with his keys, the locks on it are not clipable. Inside all the weapons and equipment will be locked down with padlocks, but they will be clipable. Do not spend more than a half hour in the billets because they receive periodic phone checkups.

Make sure silenced weapons are used, masks are worn, and any personnel that discover you are detained. In some cases the desk watchers and the NCOIC will be armed with pistols, so use speed, surprise, and caution. The key to this one is plan and synchronize.

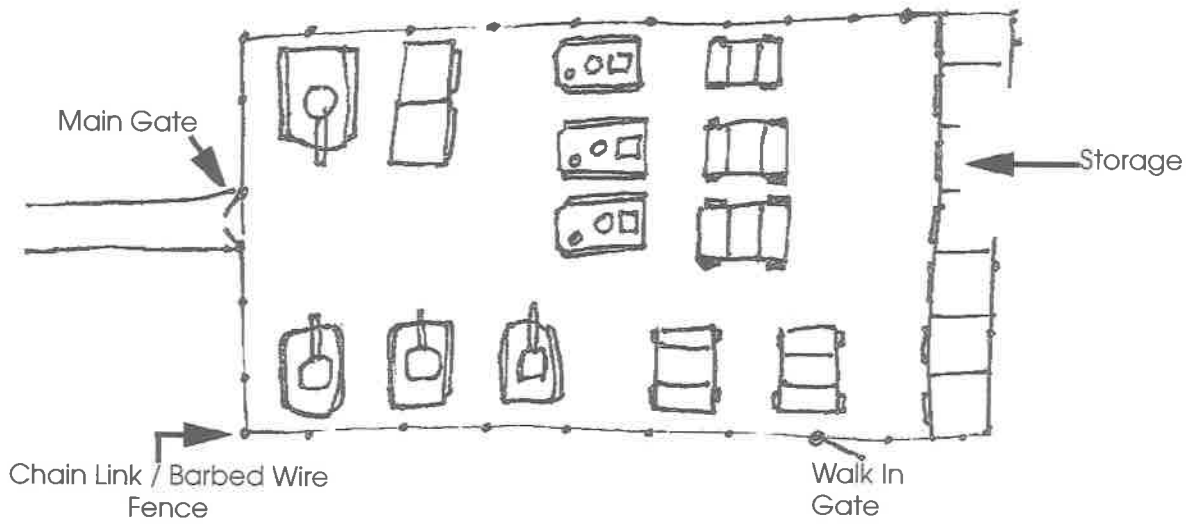
The PX and residences will contain nothing of military value. The clothing and uniform store will have some interesting apparel, but it can all be bought from a surplus store. Likewise the upper brass quarters are useless unless you want some old blowhard for a hostage. Military hostages are not valuable. They are easily replaced, and no one will pay a ransom for them. If you are thinking of killing or kidnapping one anyway, remember that they are just people doing their jobs. They have families, and dress like you when off duty. Power comes from having people on your side, and that includes military personnel.

FIRING RANGES

Firing ranges are areas on the outskirts of the posts where units go to shoot their rifles, machine guns, grenades, rocket launchers and practice demolitions. Some of these ranges will have towers or shacks. These may or may not contain useful items, depending on what kind of range it is, and who runs it.



Placement of charges on a suspension bridge



Typical motor pool

Typical billets

FIRING POINTS

Some ranges are for firing cannons , and lie on the outskirts of impact areas. These are called firing points. Unless one is occupied you would never know it from a hole in the ground. If an artillery or mortar element has to shoot, it will do so from one of these points, and sometimes spend the night. There will be one guard up at all times during the night. This guard will probably spend most of his time in the FDC vehicle (vehicle from which the indirect fire of the cannons is computed and directed) waiting on radio checkups that he has to answer. Other unit members will either be sleeping around their vehicles and cannons, or around the FDC vehicle in a large mass. Sometimes the platoon returns to its billets during the night leaving just one squad behind to guard. In this case it is most likely that the entire squad will be around the FDC vehicle. During the winter they will have a tent erected in which all platoon members will stay overnight.

At a firing point you will be able to snag cannon and mortar rounds. If it is a mortar point you could get a whole mortar. There will be personal equipment and all manner of communications equipment. Personal weapons may or may not be in the FDC vehicle with the guard. If they aren't they will be with the other vehicles or cannons.

WAR STOCKS

Trying to break into a bunker of war stocks will be as hard as locating one. What type of alarm systems they have is unknown. They will have heavy doors and heavy locks. War stocks will be partially underground, and have grass growing on top of them. There is no advice to give on these bunkers. They will contain large quantities of ammo and shells.

TROOPS IN THE FIELD

Troops in the field are troops on training exercises out in the woods, or anywhere else. They will be carrying all the equipment necessary to conduct a major war, except they won't have a bullet between them. They'll have plenty of blanks, but nothing substantial will be carried by anyone below the rank of captain.

These troops can be held up, when discovered on isolated patrols of less than squad strength, for everything they have. Just be careful not to leave them a way to communicate with anyone anytime soon after the deed. At night most units will sleep in one marked area to keep from being run over and have only one guard on duty. Sneaking up on them and taking weapons and equipment should be easy.

ASSASSINATION

Assassination is killing someone, not just anyone. If you are killing people indiscriminately, and without reason or cause it is just plain murder. Assassination should always take place as part of a plan attempting to realize a goal. People who just make you angry are not people who should make your group's hit list. People to assassinate are leaders or spokesmen of the opposition, turncoats, people who provide political support for the opposition, and funders of the opposition. People who generally are a threat to the security, safety, and cohesiveness of the group should be assassinated. The final decision to assassinate someone lies with the leader of the organization, as well as all the guilt. Members of the organization should not decide for themselves who is a turncoat or not. Members of the civilian population should never be targeted. Once again, I remind you that you want these people on your side. People are power.

Assassination should always be a quiet affair. Don't kill anyone and then take the credit for it. It should be enough that the opposition is that much weaker. The public should not associate your organization with the killing of people that to them may seem innocent. Assassination should look as much like death through natural causes or accident as possible. If that can't be arranged, then make it as anonymous seeming as possible. Never make it traceable back to your organization. If an assassination is to take place, let as few members of the organization know about it as possible and swear them to secrecy. The less people that know, the better.

Methods of assassination that seem like accidents or natural causes are many. You need only use your imagination. Below are listed a few ideas that may arouse your creativity.

NATURAL CAUSES

Go to a drug store pharmacy counter and ask for some Humalin R insulin, and syringes. If they ask why, tell them that you are on a errand for a diabetic who is sick at home. If they refuse just try another drug store until somebody gives you what you need. Once you get the stuff, fill a couple of syringes full of it. Hold the victim down and inject the insulin into his hairline, a freckle, his armpit, or any other place that won't be detected. The guy will be dead of "natural causes" in less than an hour.

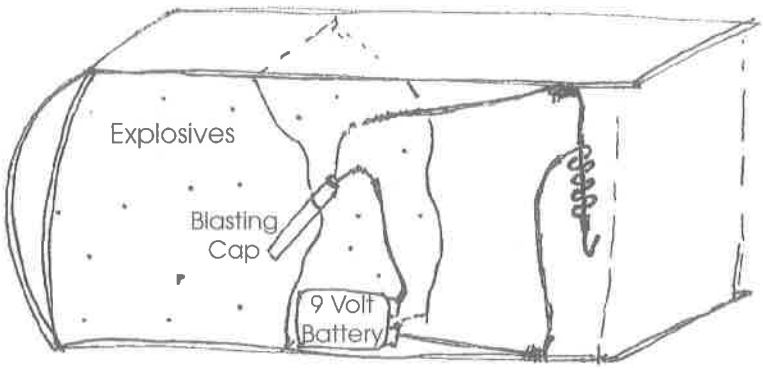
Drowning someone and then leaving them there can work also. If you do it in their own home you can leave them in their bathtub.

CARBON MONOXIDE

If you get a long hose you can kill the target with carbon monoxide. If a window is unlocked, just pry it open. Hook the hose up to your car exhaust and then put the other end into the targets home. If you turn on your car and let it run for an hour or two, the target will be dead. This method is not going to look like natural causes.

BOOK BOMBS

Book bombs are very easy to make. Like letter bombs, they are mailed to the target. When mailing, always mail from an out of town, or out of state mailbox. Use a bogus return address for the place from which you are mailing. The absence of a return address would seem too odd. To construct a book bomb first find a book of sufficient thickness, at least two inches. Then carve out the center of all the pages leaving enough to support the cover, and to look natural. If using a plastic explosive make sure that it is sealed in plastic or a container, and does not leak out. Now hook up a nine volt battery to one end of an electrical blasting cap. The connection between the other end of the blasting cap, and the battery should have a break in it. Fasten down the battery inside the book. Strip off about an inch of insulation from both the leads at the break in the wire. Wrap one of the stripped wires around the other at a point where it is still insulated, but just above the point where it was stripped. Wrap



Book Bomb

only the portion that is bare metal around the other wire, but do it as many times as possible. Now, take hold of the stripped wire that has not been wrapped, and form it into a hook. When finished, pulling the two wires apart should cause their stripped portions to come into contact completing the circuit that will detonate the blasting cap. Affix one of the wires to the inside cover of the book, and the other to the inside bottom of the book. Set it so that opening the cover more than four inches will cause the two wires to come into contact. Now insert the blasting cap into the explosive and close the book. Wrap the book up, address it, and mail it.

Using the above process almost anything can be booby trapped. You can booby trap the lid on a toilet, a car hood, a refrigerator, a door or even use it as a sort of trip wire. The combination of nine volt batteries and electrical blasting caps (homemade, or professional) is a good one to keep in mind.

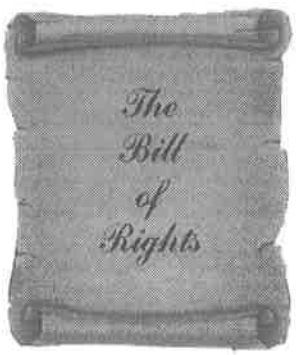
GUNFIRE

Assassination by gunfire is a noisy thing to do. Make sure a silenced weapon is used if you intend to do this where it might be heard. Also, empty your magazine into the target. People can survive multiple gunshot wounds so be sure to get a few shots into the target's head and heart. If you have someone who

is an excellent shot with a rifle, try to go that route. A pistol is about the only thing you can put a silencer on, and have it work, but you have to be right up with the target to be sure it is doing the job. That may lead to capture. Silencers only work well with subsonic ammo, which is a quality that is only found in pistol rounds such as the 45. There are, however, ways to make any round subsonic. You could reload it yourself with less powder. Or you could drill a series of holes in the barrel to dissipate the pressure of the burning powder, slowing the round down.

Assassination is a thing that requires imagination. It should be planned out and foolproof before it is attempted. Take all the necessary precautions to avoid being caught, or traced to the deed. Make sure during the planning that you compile as much information about the target as possible. Knowing where the target will be is half the problem of killing him.

In all, assassination should be avoided as much as possible, and used only when absolutely necessary. If nobody has been killed on either side in your campaign, don't up the ante by initiating a wave of assassinations. They can be really counter-productive if it becomes known that you are doing them. They can really bring the heat down on an organization.


The
Bill
of
Rights

Chapter 3
Personal Weapons

The purpose of this chapter is to inform the reader of the basics of marksmanship, ballistics of various rounds, types of firearms, and types of sighting equipment. In this chapter the reader will not be shown pictures of "cool" weapons or "neat-o" types of exotic ammunition. Having a hard-on for a weapon doesn't mean it is any good, or give its possessor any knowledge of how to work it. This will be a down-to-earth, informative chapter that should provide the reader with the information he will need to select, and operate various weapon types.

THE RIFLE

The most versatile personal weapon to have is the rifle. Whether it be of the assault, or hunting variety, a rifle combines long range accuracy with lethal stopping power. It is never a bad choice when selecting a personal weapon.

There are six major types of rifles. Each type is defined by its action (the way rounds are loaded into it's chamber).

The first type is the semiautomatic or autoloader. This type of rifle fires each time the trigger is pulled until it runs out of ammunition. The advantage of an autoloader is firepower, while disadvantages are slightly less accuracy, and malfunctions .

The bolt action rifle has a manually operated reloading system. A hand operated bolt assembly is used to chamber and eject rounds. An advantage to bolt action is accuracy, while a disadvantage is slowness.

A lever action rifle has a lever below it that will eject and chamber rounds by pushing it down and forward. It is the action most associated with rifles of the American western frontier. An advantage to this type of rifle is its speed of action. Disadvantages are that it is not as accurate as the bolt action rifle. Also, weapons that make use of lever action are often chambered for underpowered types of ammunition.

A slide, or pump action rifle has a moving forend that ejects and chambers rounds. By sliding the forend back and forth the weapon is made ready to fire. This weapon type has the same advantages and disadvantages as the lever action.

A single shot comes in either the break open or a bolt action. It differs from a bolt action in that it has no internal magazine, and every round must be hand loaded before firing. This weapon has the possible advantage of accuracy, and the disadvantage of being even slower to operate than a bolt action.

A fully automatic rifle is a weapon that continues to fire as long as its trigger is held down, and it has ammunition. This weapon type has the advantage of firepower, but the disadvantages of seriously reduced accuracy, and quick expenditure of ammunition.

When choosing a weapon, the best bet would be a semiautomatic rifle. This weapon type will keep members of an organization competitive on a battlefield. Some semiautomatic weapons also have a selector switch, allowing them to operate in the fully automatic mode.

Keep in mind the availability of rounds for your weapon when making a selection. Another thing to consider is the method of loading rounds into the weapon. A weapon that uses preloaded magazines, or clips will aid in keeping organization members active on the battlefield.

The ballistics of the round that a rifle is chambered in should be considered. If the round is too underpowered it will be of very little use at long ranges. As a rule, avoid rifles that are chambered for pistol rounds, or have chopped-off barrels. These types of rifles will leave their operators out-gunned when they go up against an enemy using full sized loads and weapons.

There are two ballistics tables included in this chapter. The first table has data on rounds that will function in various military rifles. The entries in this table are arranged according to caliber, bullet weight, and bullet design. The second table contains similar data about popular civilian types of ammunition. The civilian ammunition table is arranged according to bullet caliber and weight, but not design. The differences in projectile design have very little effect on the ballistics. Data on projectile design was taken into account in the military ammunition table, because those are the rounds that are most likely to be used.

The ballistic tables contain data that will help when choosing a rifle, and when using it. The first column on each table is the caliber, type, and sometimes the bullet design. The second column is the weight of the projectile. The third column is how fast the projectile is traveling when it leaves the barrel. The fourth column is how much energy the bullet contains when leaving the barrel. The fifth, sixth, and seventh columns show how high or how low a bullet will strike at various ranges when the rifle is zeroed for the range indicated by the 0.0. All of the testing was done out of twenty-four inch barrels. That is about an average length for a rifle barrel.

RIFLE MARKSMANSHIP

Shooting a rifle is more than just pointing it and pulling the trigger. While a person may end up using the "spray and pray" technique, there are some basic fundamentals that must be mastered to become reasonably accurate. The following paragraphs will be descriptions of these basics, one at a time. Becoming a good shot requires strict adherence to these basics, and a little bit of practice.

The first of the fundamentals of rifle marksmanship is to achieve a steady position. The shooter must be in a position where his rifle is not shaking, or swaying. The shooter must be able to hold the sight on the target to hit it. The non-firing hand must cradle the forward portion of the rifle's stock in a V formed by the thumb and fingers. The rifle butt should be placed firmly in the pocket of the firing shoulder. The firing hand should rest

ROUND INTERCHANGEABILITY FOR COMMON MILITARY WEAPONS

.223 Remington; 5.56mm U.S.; 5.56 X 45mm; .223/5.56 Military
M-16
M-16A2
M249 S.A.W.
AR-15
Ruger Mini-14
AUG (Steyr)
FNC, 11, 22, and 23 Auto Rifles
HK-93
Valmet M76 Std.
M82 Bullpup
HK 770 Auto Rifle
Bushmaster Auto Pistol

.308 Winchester; 7.62 NATO; 7.62mm U.S.; 7.62 X 51mm; 7.62mm M59
M-60
BM-59
F.N.-LAR
F.N.-H.B.
F.N.-LAR Paratrooper
F.N. 308 Model 44
Galil 38
HK-91
SIG-STG 57
Valmet M78 Rifle

.30/06; .30/1906 U.S.; .300 U.S.; Cartridge .30.M2; Cartridge .30.M1; 7.62 X 63mm; .30 U.S. Gov't
M1 Garand

7.62 X 39
SKS
AK-47
AKM Auto Rifle
Valmet M78 Standard Rifle

.30M1
Universal 1003 Autoloading Carbine
Universal Model 1006
Universal 1005 SB Carbine
Universal 5000 PT Carbine
Universal Commemorative 1981 Carbine
Universal Enforcer 3000 Auto

9mm Para.
Weaver Arms Nighthawk
Wilkinson "Terry" Carbine

9mm
Commando Arms Carbine
Demro Tac-1M Carbine
Demro XF-7 Wasp Carbine
HK-94
Sterling Mark 6 Carbine
UZI Carbine

.45ACP
Auto-Ordnance 27A-1
Commando Arms Carbine
Demro Tac-1M Carbine
Demro XF-7 Wasp Carbine

BALLISTICS FOR CIVILIAN ROUNDS USABLE IN MILITARY RIFLES

ROUND/BULLET		WT. GRAINS	MUZ. VEL. (fps)	MUZ. ENERGY (ftlb.)	BULLET PATH 100yds (inches)	200yds	300yds
.223 Remington	PSP	55	3240	1282	+1.9	0.0	-8.5
"	HPPL	55	3240	1282	+1.8	0.0	-8.2
"	MC	55	3240	1282	+1.9	0.0	-8.4
"	FMC, MC BT	55	3240	1282	+1.7	0.0	-7.1
.308 Winchester	PSP	125	3050	2582	+2.0	0.0	-8.2
"	PPSP	150	2820	2648	+2.4	0.0	-9.8
"	ST, PSPCL, SP	150	2820	2648	+2.3	0.0	-9.1
"	FMC-BT	147	2750	2428	+2.3	0.0	-9.1
"	BTSP	165	2700	2670	+2.0	0.0	-8.4
"	PPSP, SPCL	180	2620	2743	+2.9	0.0	-12.1
"	ST, SP, PSPCL	180	2620	2743	+2.6	0.0	-9.9
.308 Winchester Accelerator	PSP	55	3770	1735	+1.0	0.0	-5.6
30-06 Springfield	PSP, SP	125	3140	2736	+1.8	0.0	-7.7
"	PPSP	150	2920	2839	+2.2	0.0	-9.0
"	ST, SP, PSPCL	150	2910	2820	+2.1	0.0	-8.5
"	BP	150	2910	2820	+2.0	0.0	-8.0
"	FMC (M-2)	150	2810	2630	+2.2	0.0	-8.8
"	PSPCL	165	2800	2872	+2.3	0.0	-9.0
"	BTSP	165	2800	2870	+2.1	0.0	-8.0
"	SPCL, PPSP	180	2700	2913	+2.7	0.0	-11.3
"	PSPCL, ST	180	2700	2913	+2.4	0.0	-9.3
"	BP	180	2700	2913	+2.4	0.0	-9.1
"	PPSP, SPCL	220	2410	2837	0.0	-6.8	-23.6
"	ST	220	2410	2837	0.0	-6.4	-21.6
30-06 Springfield Accelerator	PSP	55	4080	2033	+1.0	0.0	-5.0
.303 British	SPCL	180	2460	2418	0.0	-6.9	-24.4
"	PPSP	180	2460	2418	0.0	-6.1	-20.8
7.62 X 39 Soviet	SP	125	2340	1470	+2.5	0.0	-8.6
7.62 X 54R Russian	SBT	180	2575	2650	+2.3	0.0	-9.5

SP=SoftPoint;SBT=Spitzer Boat Tail;BT=Boat Tail;CL=Core Lokt;FMC=Full Metal Case;PCL=Pointed Core Lokt;PP=Power Point;PSP=Pointed Soft Point;SP=Soft Point;HP=Hollow Point;PL=Power lokt

AVERAGED BALLISTICS FOR POPULAR CIVILIAN AMMUNITION
BY TYPE AND WEIGHT

CARTRIDGE	WT. GRAINS	MUZ. VEL. (fps)	MUZ. ENERGY (ftlbs)	BULLET PATH 100yds	200yds (inches)	300yds
.222 Remington	50	3140	1094	+2.2	0.0	-10.0
"	55	3120	1200	+1.9	0.0	-8.3
.225 Winchester	55	3570	1556	+1.2	0.0	-6.2
.22-250 Remington	55	3730	1700	+0.8	0.0	-5.0
.220 Swift	55	3630	1609	+1.0	0.0	-5.6
"	60	3530	1657	+1.1	0.0	-5.7
.243	80	3350	1993	+1.6	0.0	-7.0
.243 Winchester	85	3320	2080	+1.5	0.0	-6.8
"	100	2960	1950	+1.3	0.0	-5.9
6mm Remington	80	3470	2139	+1.2	0.0	-6.0
"	100	3130	2175	+1.7	0.0	-6.8
25-20 Winchester	86	1460	407	0.0	-23.5	-79.6
.256 Winchester	60	2760	1015	0.0	-7.3	-29.6
25-35 Winchester	117	2230	1292	0.0	-9.2	-33.1
.250 Savage	87	3030	1773	+2.0	0.0	-8.4
"	100	2820	1765	+2.3	0.0	-9.8
.257 Roberts	100	2900	1867	+2.3	0.0	-9.4
"	117	2650	1824	+2.9	0.0	-12.0
25-06 Remington	87	3440	2286	+1.2	0.0	-6.3
"	90	3440	2364	+1.2	0.0	-6.1
"	100	3230	2316	+1.6	0.0	-6.9
"	117	3060	2430	+1.8	0.0	-7.3
"	120	3010	2414	+1.9	0.0	-7.4
6.5mm Remington Magnum	120	3210	2745	+1.3	0.0	-6.6
.264 Winchester Magnum	100	3320	2447	+1.3	0.0	-6.7
.264 Winchester Magnum	140	3030	2854	+1.8	0.0	-7.2
.270 Winchester	100	3480	2689	+1.2	0.0	-6.2
"	130	3110	2790	+1.7	0.0	-6.8
"	150	2900	2800	+2.0	0.0	-8.2
7mm Mauser	175	2440	2313	0.0	-6.8	-23.7
"	140	2660	2200	+2.4	0.0	-3.2
7mm-08 Remington	140	2860	2542	+2.1	0.0	-8.1
.280 Remington	150	2970	2937	+1.9	0.0	-7.8
"	165	2820	2913	+2.3	0.0	-9.4
.284 Winchester	150	2860	2724	+2.1	0.0	-8.5
7mm Remington Magnum	150	3110	3220	+1.7	0.0	-6.8
"	165	2860	3000	+1.6	0.0	-6.9
"	175	2860	3178	+2.0	0.0	-7.9
"	160	2950	3090	+1.8	0.0	-7.7
.30 Carbine	110	1990	967	0.0	-13.3	-48.0
.30 Remington	170	2120	1696	0.0	-9.7	-33.8
30-30 Accelerator	55	3400	1412	+2.0	0.0	-10.2
30-30 Winchester	125	2570	1830	0.0	-7.3	-28.1

30-30 Winchester	150	2390	1902	0.0	-8.0	-29.0
"	170	2200	1827	0.0	-8.9	-31.1
.300 Savage	150	2630	2303	+2.7	-0.0	-11.0
"	180	2350	2207	0.0	-7.7	-27.1
30-40 Krag	180	2430	2360	0.0	-7.1	-25.0
.303 Savage	190	1940	1588	0.0	-11.9	-41.4
.300 H&H Magnum	180	2880	3315	+2.1	0.0	-8.0
.300 Winchester Magnum	150	3290	3605	+1.3	0.0	-6.6
"	180	2960	3501	+1.9	0.0	-7.3
"	200	2830	3560	+1.7	0.0	-7.1
32-20 Winchester	100	1210	325	0.0	-32.3	-106.3
.32 Winchester Special	170	2250	1911	0.0	-8.6	-30.5
8mm Mauser	170	2420	2200	0.0	-7.8	-27.0
8mm Remington Magnum	185	3080	3896	+1.8	0.0	-7.6
"	220	2830	3912	+2.2	0.0	-8.5
.338 Winchester Magnum	200	2960	3890	+2.0	0.0	-8.2
"	250	2660	3927	+2.6	0.0	-10.2
.348 Winchester	200	2520	2820	0.0	-6.2	-21.9
.35 Remington	150	2300	1762	0.0	-9.2	-33.0
"	200	2050	1860	0.0	-11.8	-43.0
.358 Winchester	200	2490	2753	0.0	-6.5	-23.0
.375 Winchester	200	2200	2150	0.0	-9.5	-33.8
"	250	1900	2005	0.0	-12.0	-40.9
38-55 Winchester	255	1320	987	0.0	-23.4	-75.2
.375 H&H Magnum	270	2690	4337	+2.5	0.0	-10.0
"	300	2530	4263	+2.9	0.0	-11.5
38-40 Winchester	180	1160	538	0.0	-33.9	-110.6
44-40 Winchester	200	1190	629	0.0	-33.3	-109.5
.444 Marlin	240	2350	2942	0.0	-9.9	-38.5
"	265	2120	2644	0.0	-10.8	-39.5
45-70 Government	300	1850	2250	0.0	-15.0	-55.0
"	405	1330	1590	0.0	-24.6	-80.3
.458 Winchester Magnum	500	2040	4620	0.0	-9.6	-32.5
"	510	2040	4712	0.0	-10.3	-35.6

on the stock, applying slight pressure rearward, with the trigger finger on the trigger. The cheek of the shooter should have a good weld to the stock that allows the neck to stay relaxed, and a natural view through the sight. The shooter should support his position with whatever is available including his bones, but never his muscles.

The shooter must remain relaxed, and expend no energy to maintain his position, as this is an indication of muscle tension. Any muscle tension will throw off the aim of the weapon.

Finally, when all the other components of a steady position are in order, the shooter's weapon must naturally be aiming at the target. When shooting, it is better to adjust the whole body to achieve a natural point of aim, than to force the weapon to point at the target.

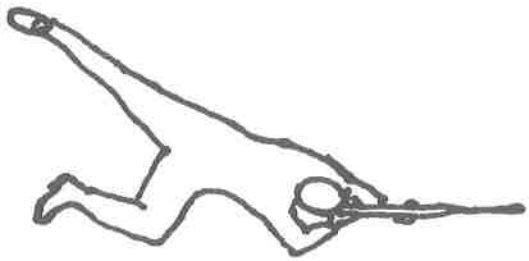
After achieving a steady position, the shooter must now aim the weapon. The shooter must achieve the same sight picture every time to have consistent results when shooting. The sights must always be aligned in the same way, and they must always fall on the target in the same way. The pictures included in this chapter will show how various sights should look when properly aligned.

The best way to lay the sights on the target is with the six o'clock hold. The six o'clock hold is placing the front sight post directly under the point that is being aimed for. The eye of the shooter must be focused on the tip of the front sight post, not the target.

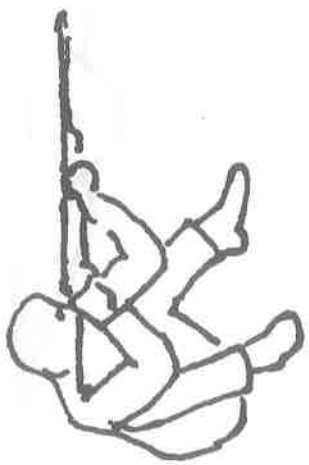
The next basic is breath control. This is an important skill that helps in achieving consistent hits on the target. The shooter should breathe normally while setting up his position and aiming. But, when going to squeeze the trigger, the shooter should wait until the natural pause after he exhales. Never breathe in or out during the shot, as this will always throw you off, especially at long distances.

Trigger squeeze involves the actual pulling of the trigger. The trigger finger should be placed on the trigger between the tip and the first joint, not at the extreme end. The shooter should slowly squeeze the trigger backwards, taking care not to shift his firing hand grip. When the rifle goes off, it should surprise

Correct 6 o'clock hold sight pictures using : A. V-Notch, B. U-Notch, C. Partridge, D. Buckhorn, and E. M-16 Type Peepsight



The prone position



The sitting position

the shooter. Being surprised will keep the shooter from anticipating the shot and flinching.

If during shooting inconsistent results are achieved, one of these basics has probably been violated. Shooting does take a little practice so don't be too upset if it does not come easily. To be considered decent, a shooter should be able to hit a target about a foot and a half square at one hundred meters. To be considered excellent a shooter should be able to hit a target the size of a paper plate at four hundred meters consistently.

There are three basic firing positions that can be used when firing without a support. They are prone, sitting, and standing. These positions will rarely be used in combat, but are good positions to practice in. Any position that is fired from in combat will probably be a variation of one of these positions. All of these positions require making use of the basic ideas behind achieving a steady position.

In the prone position the shooter is laying on his stomach. The weapon is being supported by the shooter's hands, and he will be leaning on his elbows. The weapon should not touch the ground when this is done correctly. The ankles of the shooter should be close to the ground. The firing side leg should be cocked up comfortably to make the position more firm.

In the sitting position the shooter supports the weapon in his hands by placing his elbows comfortably on his knees. The shooter should be sitting on his hind quarters with his legs out in front of him. The shooter's knees should be slightly bent to allow the elbows to use them for support.

In the standing position the shooter should align the target along his non-firing shoulder. The nonfiring elbow should rest as completely as possible on its hip or side. The non-firing hand should support the weapon at its center of balance.

The greatest aid in attempting to achieve a good firing position is comfort. The position should not be painful or require much, if any, exertion. The only way to find a position that works for an individual is experimentation. After practicing positions, they will begin to feel more natural, and comfortable.

WIND ESTIMATION AND COMPENSATION

Wind does have an effect on the rounds that are fired. An advanced shooter will have to have the ability to estimate the wind speed and compensate for it when shooting. To judge wind speed and direction a shooter should pull up some loose grass and drop it from shoulder height near the body. When the grass has hit the ground, the shooter should point at it with his arm extended. The number of degrees between the arm and the erect body, divided by four, is the wind speed in miles per hour. Compensating for wind will be a different matter for each rifle type, and round. The only way to be sure of how much a wind will effect a shot is to have fired in a similar wind, and kept track of the results. If you have not practiced in wind, you will have a pretty good idea of how far off of the target to aim after a couple of shots.

MOVING TARGETS

When shooting at a moving target, a shooter must lead the target. Leading the target is shooting at a point just in front of the target in the direction it is traveling. The best way to accomplish this lead is to slowly swing the rifle from the rear of the target, through it, and to the desired position. Pull the trigger while the rifle is still moving, but in front of the target. A lead should increase depending on the speed of the target, or its distance away.

ZEROING A RIFLE

Zeroing a rifle is the process by which the sights on a rifle are made to be in agreement with the impact of the bullet it fires. Usually when a rifle is purchased, the sights will need to be adjusted by the new owner. With most rifles of larger caliber, that are not going to be used for sniping, it is desirable to zero the rifle at twenty-five yards. Zeroing most rifles at twenty-five yards will also zero them in at ranges between two hundred, and two hundred and fifty yards. A twenty-five yard zero is a good battle sight zero. Out to around two hundred and twenty-five yards the bullet will impact a couple of inches high,

and at three hundred yards most rifle bullets will strike between three and ten inches low depending on the caliber.

To zero a rifle place a target about twenty-five yards in front of the point from which it is to be fired. Put the rifle in a clamp, on supports or use some other device to hold it steady if one is available. If no brace is available, just get into a good, steady prone position. Now, fire three shots at the target without adjusting the sights.

If you were shooting well, the shots should be no more than an inch apart from each other. If the hits are not on the bull's-eye don't worry, that is why the rifle is being zeroed. Find the center of the shot group, and measure how many inches it is away from the bull's-eye, both up or down, and right or left.

To adjust the sights using this data, the definition of a minute of angle must be understood. A minute of angle is equal to one inch of distance at one hundred yards. Most sights are calibrated so that an adjustment of one increment is equal to one minute. Some sights and scopes are adjustable in one quarter minute, or one half minute increments. With this in mind, and using a rifle that is one minute per increment on its sights, it will take four increments to equal one inch at twenty-five yards. Now adjustment of the sights can take place.

The process of firing three shots, then adjusting the sights should be repeated as needed. When finished, a shooter should have the center of the final shot group aligned with the target's center. Now the rifle has a battlefield zero.

THE SHOTGUN

A shotgun is a weapon that fires many tiny shot at a target with one pull of the trigger. The shot come out of the weapon at various speeds and sizes depending on the type of shotgun, and the type of shell being used. The shot spread out in a circular pattern which expands as the distance from the weapon increases. This expanding pattern is the shotgun's claim to fame, as it allows the shooter a greater degree of accuracy. The shotgun's greatest disadvantages are that they have relatively small magazine capacities and have a limited effective range of about sixty meters.

Shotguns have the ability to fire slugs as well as shot. The slugs are very large, and devastating to their targets. The slugs raise the effective range of the weapon to one hundred meters, but are inaccurate when compared to rifle bullets.

The shot in shotgun shells are of various sizes to allow for the hunting of different types of game. The size of the shot within the shell is determined by a numbering system. The higher the number on the shell, the smaller the shot. Shells with higher numbers will contain more shot. For combat purposes, any shell with a number higher than 4 is inappropriate. Shells with higher numbers will produce good results at close range, but lose their effectiveness quickly at longer ranges. The best loads will be 0, 00, 000 buckshot loads.

In addition to shell types there are several different shotgun sizes. From largest to smallest the sizes are ten gauge, twelve gauge, sixteen gauge, twenty gauge, twenty-eight gauge, and four ten gauge. The most common being twelve gauge. The sizes are determined by the size of the barrel's bore. Each type of shotgun has ammunition made specifically for it.

PISTOLS AND SUBMACHINEGUNS

Pistols and submachineguns are grouped together because they are very similar weapons. They are so similar that in some cases semiautomatic submachineguns are sold as pistols, and any pistol that is converted to fire fully-automatic is a submachinegun. Pistols and submachineguns fire the same types of small pistol rounds.

As a rule, choose not to use either of these weapons as a primary weapon for combat. They are fine as back-ups, but are not accurate or powerful enough for use in combat alone. Anyone who charges into a modern battlefield with a weapon that fires nothing more powerful than a pistol round will be seriously out-gunned.

In writing this, the goal is not to enrage pistol lovers. The goal is to get potential combatants to wake up, and realize that winning a battle has nothing to do with having a cool looking weapon. When the first fire fight begins, and some fool is running around with only a pistol, he will feel as though he is us-

ing a cap gun. The goal in combat is to win. To achieve that goal requires superior range, accuracy, and the ability to shoot through trees, and walls when necessary. Most pistols offer none of these abilities.

OPERATING MILITARY PERSONAL WEAPONS

This section will cover the operation of some weapons that are likely to be captured, or found on a battlefield. This section will not cover the maintenance of these weapons, only how to use them when they are acquired. Nor will this section cover weapon types that can be bought at stores. Any weapon that is bought at a store will have directions with it. This section is solely to inform the reader on the operation of various military weapons that might be of use when discovered. This section will cover rifles, pistols, machineguns, hand grenades, rocket launchers, grenade launchers and mines used by the U.S. Army. The descriptions of how to work these weapons will be kept as simple as possible.

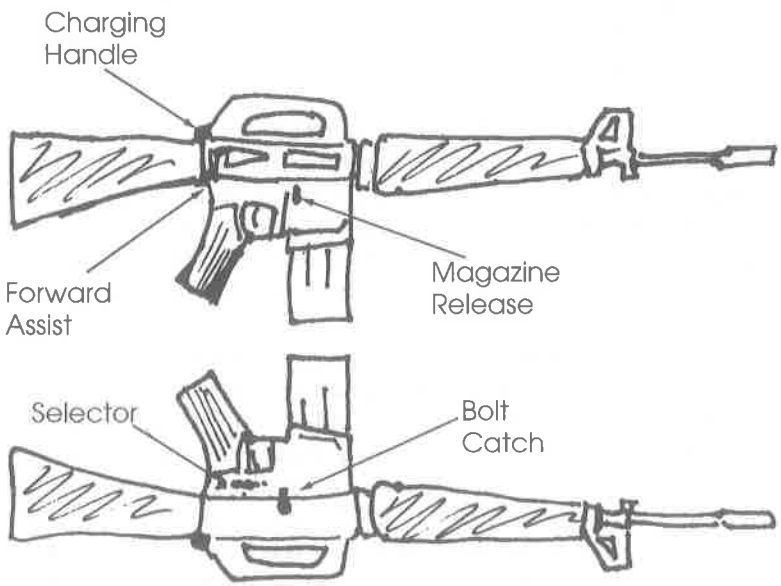
THE M-16 SERIES

The M-16 is the U.S. Army's primary combat rifle. It fires a round that is .223 in caliber from twenty or thirty round magazines. The M-16 is a very accurate weapon when treated properly. It can be employed out to about four hundred meters.

To load the M-16, insert a loaded magazine into the magazine well. Pull back the T-shaped charging handle which is located under the rear sight. The charging handle pulls the bolt back with it. Release the charging handle and the bolt will slide forward, chambering the first round. Do not ride the handle forward slowly, or control it in any way– just release it. If the bolt does not go forward, there is a small metallic switch, on the left side of the weapon as it is being fired, that should be pressed in. This is the bolt release. If the bolt still will not go forward, there is a forward assist that is located on the right side of the weapon. The forward assist extends about an inch from the weapon, and is aligned facing the rear. To use it push in on it hard several times with the palm of the firing hand.

To fire the weapon use the thumb of the firing hand (if right handed) to move the selector switch from the safe position to either semiautomatic, or automatic. Aim the weapon using the peep-hole type sights. Now fire the weapon as needed, or until it is empty. When the weapon is out of ammunition the bolt will stay locked back to facilitate reloading.

To remove an empty magazine, push in the small black button located on the magazine well with the trigger finger. This is the magazine release button. The magazine should easily slide out. Insert another fresh magazine into the weapon's magazine well. Press in the metallic bolt release switch, and the first round of the second magazine will be chambered.



The M 16 Rifle

THE M-9 PISTOL

The M-9 is the U.S. Army's primary pistol. It is the replacement for the Colt .45. The M-9 uses 9mm ammunition in fourteen round magazines.

To load the M-9 pistol, insert a loaded magazine into the magazine well, which is located in the handle. Grip the weapon's slide on the scored surface above the handgrip. Pull the slide back and release it to chamber the first round.

To fire the pistol, first locate the decocking/safety lever near the pistol's rear sights, on the left side. Put the lever in the firing position. Aim the weapon. Pull the trigger until the weapon is out of ammunition. To reload the weapon, press the magazine release button, slide out the empty magazine, then insert a new one. Recock the pistol using the slide to chamber the first round of the second magazine.

M-9 Pistol

.45 Caliber Pistol

THE COLT .45 PISTOL

The .45 pistol is the U.S. Army's old primary pistol. The M-9 was its replacement. The .45 is still in use in some units so it is necessary to know how to operate it also. The .45 fires .45 ammunition out of seven round magazines.

To load the .45 insert a loaded magazine into the magazine well in the handle. Grasp the weapons slide on the scored rear portions. Pull the slide back, and release it to chamber the first round.

To fire the weapon, locate the weapon's safety lock, and take it off of safe. Aim the weapon at the target and pull the trigger until the weapon is empty. When the weapon is empty, press the magazine release button, and remove the empty magazine. Insert a fresh magazine, and pull back the slide on the weapon to chamber the first round of the next magazine.

THE M249 MACHINE GUN

The M249 machine gun is the U.S. Army's primary machine gun for infantry units. There will be about one M249 per squad. The M249 fires the same ammunition as the M-16 out of the same thirty round magazines, or belts that are inside of one hundred or two hundred round capacity boxes. The belts may also appear free of boxes. The M249 has a bipod near the end of the barrel and a retractable buttstock.

To load the M249, place the weapon on fire, and pull the cocking handle (on right side) to the rear. The bolt will now be locked to the rear. Now push the handle back forward. Place the weapon on safe. Raise the feed tray cover on the top of the weapon. If using boxed ammunition, attach the box now. Attach the box to the lower portion of the receiver by aligning the box latch with the receiver dovetail, and pushing forward. Take the belt of ammunition and place it in the feed tray coming in from the left. The first round should be up against the cartridge stop in the feed tray, and aligned to go down into the chamber when the bolt comes forward. The belt of ammunition may have a lead link tab on it. If it does, the tab should be hanging out the right side of the weapon. Hold the belt in place, and close the feed tray cover. If the weapon is loaded properly, a small tab on the top of the feed tray cover, just above where the rounds are entering the weapon, will be raised. This is the cartridge indicator.

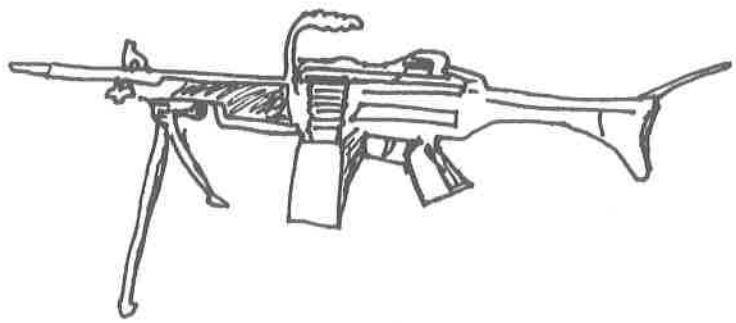
To fire the weapon, take the safety off. Aim the weapon at the target. Pull the trigger, holding it down to continue firing on automatic. Try to fire six round bursts instead of keeping the trigger pulled until the weapon is empty. This will keep the barrel from warping too soon. The time it takes to fire a six round burst on most weapons is also the time it takes to say "burst of six".

THE M-60 MACHINE GUN

The M-60 used to be the U.S. Army's primary general purpose machine gun. The M249 has replaced it in most infantry units, but it is still used as armament on many vehicles and remains the primary machine gun for many front line units. The M-60 fires 7.62 NATO ammunition out of belts only. The M-60 has a retractable bipod near the end of the barrel.

To load the M-60, place the weapon's safety on fire. Pull the cocking handle to the rear to lock the bolt back. Push the handle back forward. Place the weapon back on safe. Place the first round of the belt in the feed tray groove, leading the belt in from the left. Make sure that a vacant double link is leading the belt with the open side of the link facing down. Hold the belt in place, and close the feed tray cover.

To fire the weapon take it off safe. Aim the weapon at the target. Pull the trigger on the weapon, holding it down to continue firing on automatic. Use the same six round bursts that were recommended when using the M249.



The M249 SAW

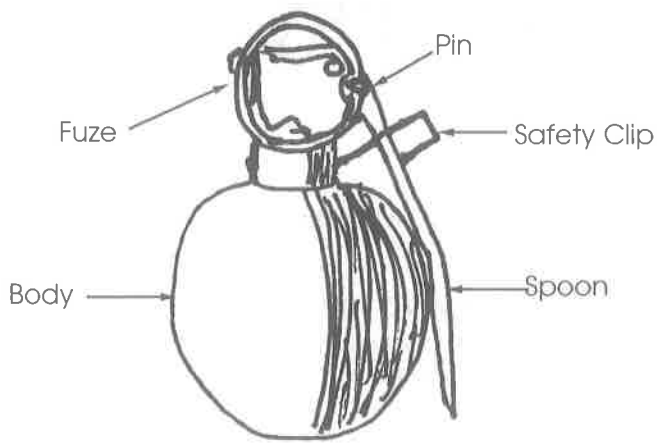
HAND GRENADES

The U.S. Army employs a number of hand grenades. Each type has a different purpose but they all have the same basic operating procedure. This section will first describe how to work a hand grenade, then will describe the different types available, and their uses.

A hand grenade has three things that need to be done to it for it to function properly. These things involve the pin, the spoon, and the safety clip. The pin is a long, two pronged cotter pin with a ring attached to it. It is located at the top of the grenade. The spoon is a long metal piece that extends from the top of the grenade to down along its body. The safety clip is attached to the spoon and will hold the spoon in position if the pin is pulled.

To use a grenade, grasp the grenade around the body with the throwing hand, keeping the throwing thumb over the spoon to hold it in position. Flick off the safety clip. Pull the pin. Keep the spoon held down as long as the weapon is in the throwing hand. Once thrown, the spoon will come off releasing the firing pin. The firing pin will ignite the grenade's fuse, which will allow it to travel for three to five seconds before it goes off.

When carrying grenades, keep all of the pins, and clips on them. Push back both prongs on the pin while it is inserted in the grenade to keep the pin from coming out easily. Do not release hand pressure on the spoon while it is still being held. One must always remember that all of the military's weapons were made by the lowest bidder. The fuse may be a five second fuse, but it isn't worth the risk of finding out for sure.



M 57 Hand Grenade

THE M-18 COLORED SMOKE GRENADE

The M-18 colored smoke grenade is the U.S. Army's primary signaling grenade. It has a canister-shaped body about the size of a beer can with the fuse apparatus coming out the top. This grenade will have M-18, smoke, and the color of the smoke it will emit written on the outside of it. This grenade is best used for signaling, but it can be used for smoke screens. The HC smoke grenades put out a greater volume of smoke so they should be used for smoke screens when available.

THE ABC M25A2 CS RIOT-CONTROL GRENADE

The ABC M25A2 CS riot-control hand grenade is the U.S. Army's primary crowd control grenade. It has a grey, round body. It also has red bands and markings denoting its name on the outside of it. This grenade will explode causing injuries to people within five meters of it. It will also release a cloud of tear gas when it goes off that will choke and blind people.

THE M34 WP SMOKE GRENADE

The M34 WP smoke grenade is a smoke grenade with a kick. It is light green in color with a yellow band and red markings. An older version of the grenade will be light green with a yellow band and markings. This grenade makes use of white phosphorus to create a smoke screen effect. The white phosphorus grenade is also used for starting fires. Because white phosphorus burns so well, and the grenade explodes all at once, unlike a regular smoke grenade, the M34 will cause serious burn casualties up to thirty-five meters away.

THE AN/M8 HC SMOKE GRENADE

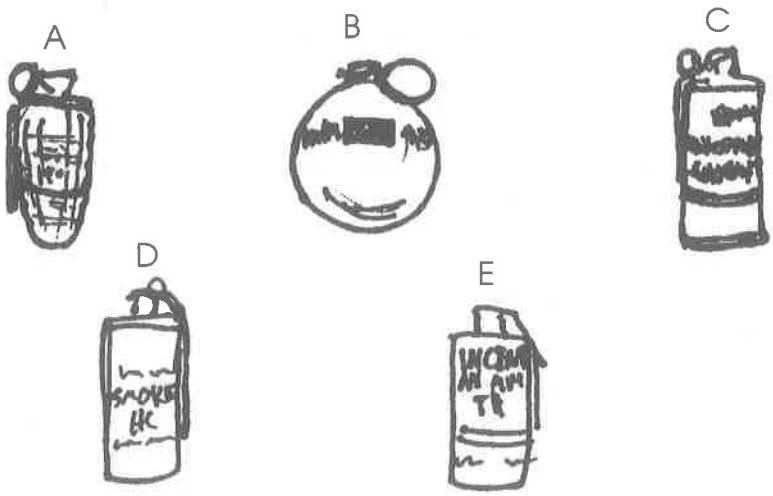
The AN/M8 HC smoke grenade is the U.S. Army's primary smoke screening hand grenade. The grenade is light green with a white top in color. It will have markings in black written across its beer can shaped body. This is a highly concentrated smoke grenade. It is perfect for producing a smoke screen.

THE M67 FRAGMENTATION GRENADE

The M67 fragmentation grenade is the U.S. Army's primary antipersonnel grenade. The grenade will be O.D. with yellow markings on the outside of it. It has a round body. This type of grenade is the replacement for the older pineapple type hand grenades. The M67 is full of high explosive, and is very powerful. This grenade will explode about five seconds after the spoon is released, peppering the area with bits of shrapnel.

THE AN/M14 TH 3 INCENDIARY GRENADE

The AN/M14 TH 3 incendiary grenade is used by the U.S. Army to destroy equipment. It has a light red, beer can shaped body with black markings. This grenade is full of thermite, which is a mixture of aluminum powder and iron oxide. It will burn relatively slowly producing bright sparks. The thermite inside the grenade will burn through just about anything. It will even burn through the engine block on a car.

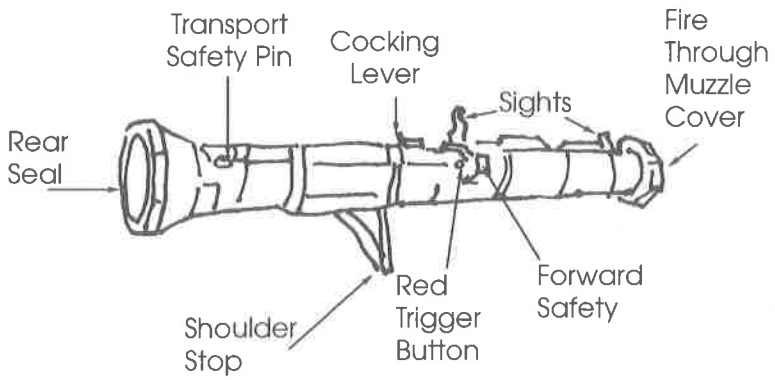


A. M34 WP
B.ABC M25A2 Riot Control
C. M18 Smoke
D. M8 HC Smoke
E. AN/M14 TH3 Incendiary

THE M136 LAUNCHER (AT4)

The M136 launcher is a portable, single man operated rocket launcher. It is similar to the LAW rocket launcher system, but it is newer. The weapon is used by the U.S. Army to destroy armored vehicles. The AT4 will likely destroy any armored vehicle that it hits on the sides or the rear. Avoid a frontal shot, as this is where armored vehicles are the most armored.

To prepare the weapon to be fired, first cradle it in the left hand with the firing end facing left. Pull the transport safety pin out of the launcher. It is located at the rear of the weapon, and has a ring and a lanyard attached to it. Reach below the launcher to unsnap, and fold down the shoulder stop. Place the launcher on your right shoulder. Ensure the shoulder stop is snug against the front of the right shoulder. Release the front sight by pressing down on the front sight cover and sliding it to the rear. Release the rear sight by pressing down on its cover and sliding it forward. The sights will pop up once released. The cocking lever is located near the rear sight. Unfold the cocking lever. Push the cocking lever forward, and down to the right with the right thumb. Now let the cocking lever slide back. Do not refold the cocking lever. The weapon is now armed.



M136 Launcher (AT4)

To fire the launcher, first estimate the range to the target. The weapon has an adjustable sight that comes set on a two hundred meter battle sight. If the target is less than two hundred and fifty meters the rear sights will not need adjusting. If it is at a greater distance then turn the knob on the rear sight to the proper setting. There will be a click at each fifty meter increment. Ensure that nobody is behind the weapon. Aim the weapon at the target. Depress the red safety catch, and hold it down. While holding down the safety catch press the red trigger button.

THE M72A2 LIGHT ANTITANK WEAPON (LAW)

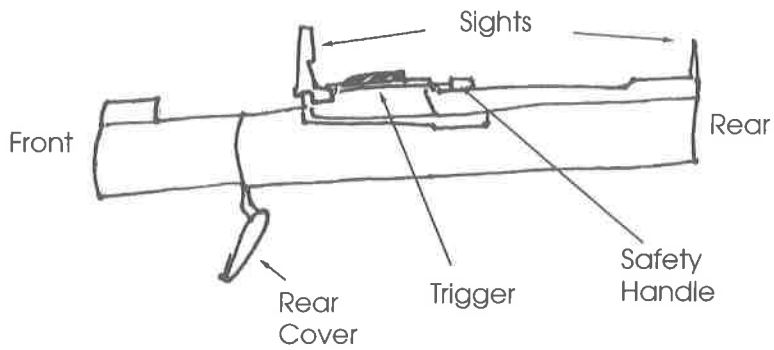
The LAW rocket system is used by the U.S. Army to defeat lightly armored vehicles. It can defeat the armor on some tanks when it is fired at their sides or rear. The LAW is a disposable, telescoping, tubular rocket launcher that was created during the Vietnam era.

To prepare the LAW for firing, hold it up in front of you. At the rear of the launcher is a pull pin that holds the rear cover assembly on the launcher. Pull the pin out, and rotate the rear cover assembly down. With the rear cover down, the front cover and sling assembly will fall off of the launcher. Grasp the rear sight cover with one hand, (which is the boxlike structure just above where the pull pin was) and the top portion of the launcher near the middle with the other hand. Pull the launcher sharply out into its fully extended position by keeping a good grip on the weapon and pulling your hands away from each other. Test the launcher to see if it has locked into position by trying to push it back together. If the launcher is fully extended the front and rear sights will pop up for use. Place the launcher on the right shoulder with the rear cover assembly snug against the front of the right shoulder. Directly in front of the rear sight is the trigger, which is a large black button. Directly in front of the trigger is the safety handle. Grasp the safety handle and pull it towards the front of the launcher until it clicks into position. The weapon is now fully armed.

To fire the launcher, look through the sights and align them on the target. Make sure the correct distance marker on the front

sight is used. Check the area to the rear of the launcher for anyone in the back blast area. Depress the black button in front of the rear sight to fire the weapon.

It is important to remember to check the back blast area when firing rocket launchers. The exhaust is hot and powerful during the initial boost out of the weapon. The shooter of the weapon will not be injured by the exhaust, but anyone behind the tube will become a casualty.



An Extended M72A2 LAW

THE M203 GRENADE LAUNCHER

The M203 fires a forty millimeter projectile that will explode on impact. It is a single shot weapon, and is attached to the bottom of other weapons, most often an M16. The M203 is the U.S. Army's replacement for the M79 grenade launcher, which saw service during the Vietnam war.

To prepare the M203 for firing, locate the black lever on the left side of the weapon along its bell (barrel). Depressing the lever will allow the bell to slide forward. With the bell slid forward, a round may be inserted into it. Insert a round into the bell, and slide the bell back until it locks into position.

To fire the weapon, aim it at the target. If using an M16, hold on to the thirty round magazine inserted into the weapon, using it as a pistol grip. Pull the trigger.

MINES

Mines are explosive devices that are in most cases designed to explode when someone steps on them, or a vehicle travels over them. Some mines, such as the claymore, can be detonated by a remote operator via electrical impulse. Mines can be buried, left in tall weeds, or simply left in the open depending on what type they are.

Any time a mine is used its location should be recorded exactly so that it can be removed later. An unrecorded mine is a threat to friendly troops as well as the enemy. All parts of mines that are removed to make it operational, such as safety pins, should be kept. Without these items the mine cannot be made safe for transport and later use. When recovering mines, follow the same directions as when installing them, but in reverse.

THE M16A1 ANTIPERSONNEL MINE

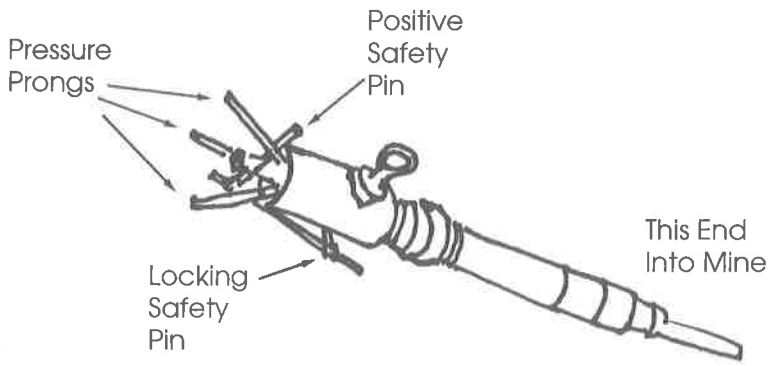
The M16 mine is a basic pressure activated mine. It consists of three parts, two of which are used in the completed mine. The first part is the explosive canister, which is the size and shape of a good sized can of vegetables. The second part is shipping plug which is only used to keep the fuze well clean of foreign objects. The third part is the fuse itself, a cylindrical, three pronged object which will screw into the explosive canister when the shipping plug is removed.

To prepare the mine for use, first unscrew the shipping plug from the top of the mine. Make sure the fuze well is free of all obstructions. Screw the fuze into the explosive canister with the three pronged end facing up.

Dig a hole big enough for the mine to fit into, and deep enough so that only the three prongs will be above the surface. Examine the three safety pins on the mine's fuze. The highest one, the one that is among the prongs is the positive safety pin. The pin that is in a ring shape should be ignored. The lower pin, that is not ring shaped, is the locking safety pin. Cover the

mine with dirt up to the locking safety pin. Remove the locking safety pin. Detach the locking safety pin from the positive safety pin. Arrange the positive safety pin so that it will remove easily from its position among the prongs. Cover the mine with dirt up to the prongs. Gently remove the positive safety pin from among the prongs. The mine will now detonate if the prongs are disturbed.

THE M21 ANTITANK MINE



M16A1 Mine Fuze

The M21 is a mine that detonates a large charge underneath tanks, or other vehicles that will destroy them. It works by using a tilt rod extending from the top of the round that causes the mine to explode when it tilts to a far enough angle. The rod is important because it allows the mine to detonate even if the vehicle wheels or treads do not run over the mine itself. The center of the vehicle can detonate the mine by moving the tilt rod. The mine is best used in areas of tall grass that will hide the tilt rod.

The M21 has five main parts. The first part is the flat cylinder containing the high explosive charge. The second and third parts are shipping plugs, one is in the top center of the mine, the other is in the bottom center of the mine. The one on the top is hexagonal in shape, and the one on the bottom has a slot for a screw driving device. The fourth part of the mine is a small explosive charge called the booster. It is about the size and shape of a stack of five quarters. The fifth part of the mine is the fuse, including the extending tilt rod, and all safety features.

Before preparing the mine for use, dig a hole about ten to twelve inches in diameter, and six inches deep. Make sure the bottom of the hole provides a firm foundation for the mine. Put a board or other item in the bottom of the hole if necessary.

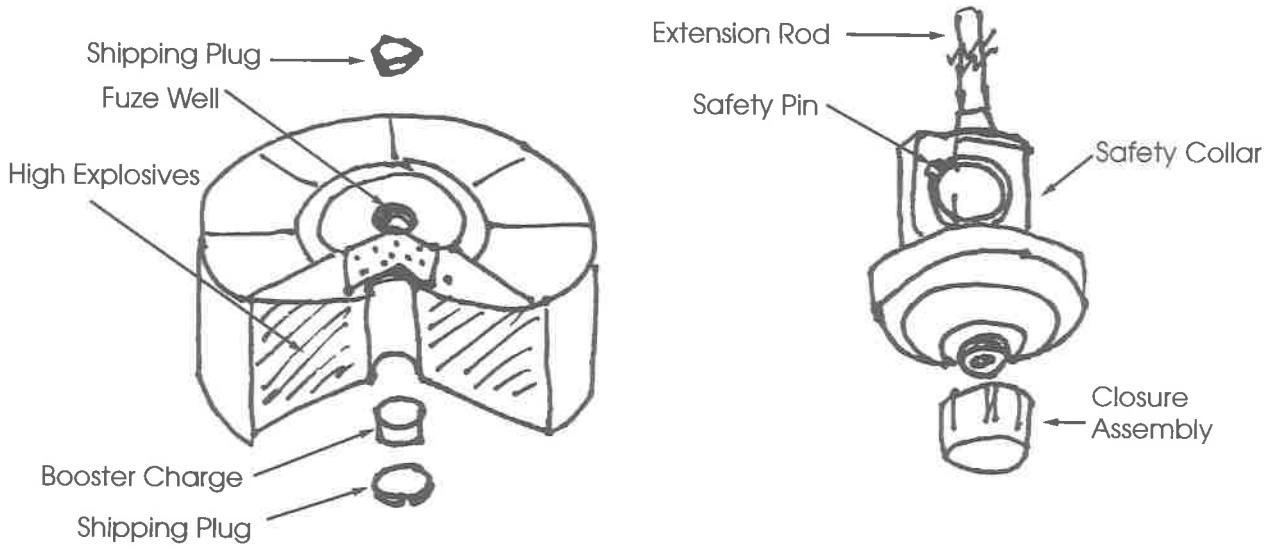
To prepare the mine for use, remove the shipping plug from the bottom of the mine. This plug has a slot for a screw driving device in it. Take the M120 booster charge, and insert it into the now exposed cavity where the shipping plug had been. Place the booster so that its washer is side-facing what will be the top of the mine. Screw the bottom shipping plug back into place, securing the booster charge. Remove the other shipping plug from the top of the mine.

Examine the fuze. The widest part of the fuze is the bottom part of it. Underneath the widest part is a cap called the closure assembly. Remove the closure assembly by unscrewing it. Screw the fuse hand tight into the body of the mine using the teeth on which the closure assembly had been threaded.

Place the mine in the hole with the fused side up. Bury the mine up to the widest part of the fuse. Keep all dirt away from the removable plastic collar on the fuse.

Screw the extension rod into the top of the fuse ensuring that the rod is pointing straight up. The extension rod is the long rod that will cause the mine to detonate when it is tilted.

Examine the safety pin and the removable collar. The safety pin has a double prong on it that needs to be straightened out before it is removed. The pin holds a plastic collar on the fuse that keeps the fuse from tilting, and detonating the mine. Pull out the pin, and carefully remove both sections of the plastic collar. The mine is now armed.



Mine and Fuze

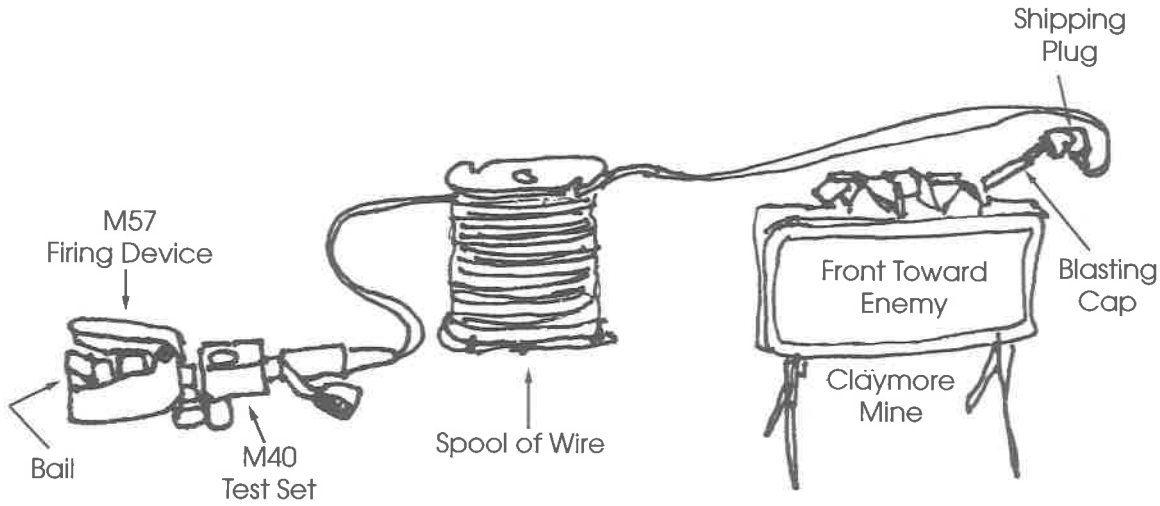
THE M18A1 CLAYMORE MINE

The claymore mine is a directional mine. When it is detonated it fires many steel pellets in one direction, which mince anything that gets in their way. It is akin to a great blast from a huge shotgun with a wide open choke and about a one inch barrel. The effective range of the mine is fifty meters. The mine also launches debris backwards, so it has to be employed a minimum of sixteen meters away from a protected operator. It can cause damage up to one hundred meters to the rear. These directions for using claymore mines will allow the operator of the mine to remotely detonate it at any time. These directions for setting up the mine also cover how to test it once it is in place.

The claymore comes in a pouch with all the gear necessary to set it up and test it. Inside the pouch are the mine, an M57 firing device (the clacker), a spool of wire with a blasting cap attached to it, and one M40 test set is included with every six claymore mines. The M40 test set is not important when setting up the mine, so don't worry if one cannot be found.

Before preparing the mine for use, test the firing device, and wire with the M40 test set if one is available. Do this by plugging the male connector on the firing device into the female connector on the test device. Take the male end connector on the testing device and plug it into the female connector on the spool of wire. On the firing device, pull down the small metal bar that keeps the clacker from being depressed (the bail). Look into the window on the test set, and depress the clacker. If a light appeared in the window, the test set and the clacker are both functioning properly, and the wire is good. Now put everything back into the pouch separately.

To begin setting up the mine, take the spool of wire and blasting cap out of the pouch. Attach the end of the wire that has the female connector in it to a fixed object at the place where the mine will be detonated. Leave about three feet of slack between the fixed object and the female connector. Unravel the rest of the spool of wire while walking towards the point where the mine is to be set up, taking the pouch along also.



Remote set-up for mine detonation

Once at the selected position, remove the mine from the pouch. The bottom of the mine has two sets of pointy legs that need to be extended. Extend these legs, then stick them one-third of the way into the ground, with the front of the mine facing the correct direction. The front of the mine is labeled.

Sight the mine in using the slit sight on the top of the mine. Looking through the sight, select a position at ground level fifty meters to the front of the sight. Then fasten the wire to a fixed object to the rear of the mine, so the aim of the mine will not be disturbed by stress on the wire.

On the top of the mine are two shipping plugs. They both are hollow and are L-shaped. Remove one of these shipping plugs. The shipping plug that was removed will be used to hold the blasting cap and wire in place in the mine. Slide the wire through the slit in the side of the hollow shipping plug so that it is running through the center of it. Pull the wire so that the blasting cap attached to it is snug and as far inside the shipping plug as it will go. The blasting cap should be coming out of the end of the shipping plug that had been screwed into the mine. Screw the shipping plug back into the mine, along with the blasting cap, leaving the wire hanging out of it.

Check the aim on the mine, and camouflage it as much as possible and try to bury the wire.

Go back to the firing position, from which the mine will be remotely detonated. Attach the test set to the clacker, and the wire to the test set to retest them as before. After retesting the circuit, put the test set away.

To fire the mine, attach the wire to the firing device (clacker), without the test set in between them. Push the bail (wire safety) down so that the clacker can be depressed. Ensure that all friendly troops nearby are under cover. Depress the clacker three times. The mine should detonate the first time the clacker is depressed.

OPERATING SIGHTING EQUIPMENT

This section is an explanation of the uses of various types of sighting equipment. This section will cover magnifying scopes, laser sights, and night vision scopes used by the military. The

purpose of this section is inform the reader of the options available when selecting a sighting device, and how to use some of the more complex sighting devices.

SCOPES

Magnifying scopes are the most used sighting aids. When properly zeroed, a scope will magnify the target for the shooter, and provide a crosshair for the shooter to use as a sight. Sights of this sort are very handy for long range shooting.

Scopes come in many different magnifications. They can magnify a target so that it appears anywhere from two to twenty times bigger, depending on the type of scope used. Some are adjustable, and can have their magnification increased or decreased depending on what the shooter wants. To learn the magnification on a scope, find where it is labeled with a number followed by an "X". This number will indicate the magnification of the scope.

Scopes require certain items before they can be mounted on a rifle. First, a scope needs a place to be mounted on the rifle, or a store-bought mount designed for the type of rifle being used. Second, the scope will need a set of rings. The rings attach around the scope and hold it on to the mount. Usually, mounts and rings come together, and are prefabricated to fit one certain type of rifle. The SKS is a perfect example of a rifle which needs both mount and rings to be able to use a scope. To mount a scope on an SKS, the shooter must buy a plate that fits over the top of the rifle, and rings that will hold a scope to this plate.

Scopes are sighted in much the same way as regular sights. They will have dials on the top, and one side that is adjustable. These dials will have markings at increments equaling one minute to one quarter minute, just like regular sights. Use the same procedure as explained earlier for sighting in rifles using regular sights when sighting in a scope.

LASER SIGHTS

Laser sights for small arms shoot a beam of light out to the target to aid in sighting. The idea behind them is to have the

bullet hit wherever the beam is, when the trigger is pulled. The shooter need only point the beam at a target to know that the target will be hit. Laser sights greatly decrease the time it takes to aim a weapon.

Laser sights can be used in conjunction with magnifying scopes for long range shooting. When a rifle is used this way, the scope is used to see where the beam is at long ranges.

Laser sights are best used on submachine guns, and pistols. Weapons that have a short range, and typically poor accuracy during repeated shots will be able to reacquire targets quickly when using a laser sight. Laser sights are ideal for use when clearing buildings, or in a quick fire situation.

NIGHT VISION

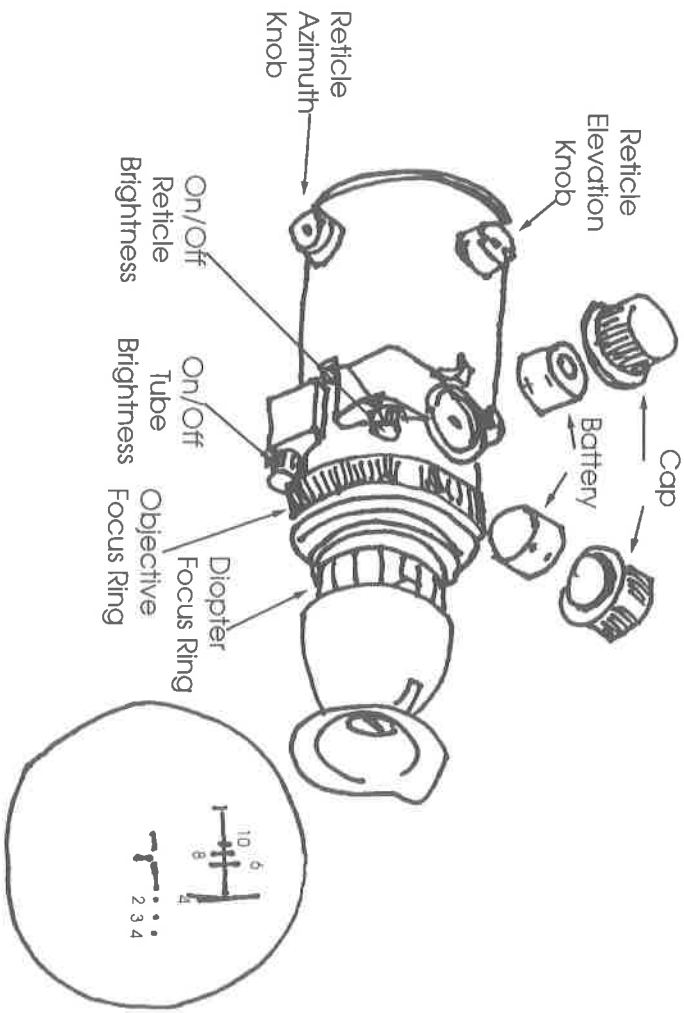
Night vision scopes both magnify and allow their users to see in almost total darkness. They work by converting photons of non-visible light energy into electrical impulses, and then back into photons, of visible light. They are very handy to have at night, and can be fitted to almost any weapon.

THE AN/PVS 4

The AN/PVS 4 is a passive night scope used by the U.S. Army. It is a simple device to operate, and can be mounted on most weapons, including both the M-16 and the .50 cal machine gun. The system is battery operated, coming complete in its case with batteries.

Before preparing the AN/PVS 4 for operation, first remove it from its case. Ensure that the core of the release valve on the case is depressed before unlatching the case. This will slowly equalize the air pressure inside the case with the air pressure outside the case. The release valve is located near the handle on the case.

Take the sight out of the case, and unscrew the battery cover caps. There are two caps, one on the top, and one on the right side of the sight. Place the two batteries provided into their holes in the sight. Make sure that the raised (negative) end of the batteries is facing out away from the sight. Now replace the caps over the batteries. The batteries should be removed


Reticle Azimuth Knob
Reticle Elevation Knob
On/Off Reticle Brightness
On/Off Tube Brightness
Objective Focus Ring
Diopter Focus Ring
Battery
Cap
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4

whenever the sight is not in use. If it is daylight, place the daylight cover over the sight to keep from damaging it.

Press your eye against the rubber eye guard to look through the scope. Unless slight pressure is applied with the head, the rubber eye guard will stay closed and you will not be allowed to look through the scope. Turn on the sight using the ON-OFF/TUBE BRIGHTNESS knob. Adjust this knob to the lowest setting that provides a good view. To get the reticle to appear, turn on the ON-OFF RETICLE BRIGHTNESS control. If the reticle is fuzzy, adjust the diopter focus ring, which is the first ring beyond the rubber eye guard, to make it more clear. Adjust the objective focus ring, which is the second adjustable ring beyond the eye guard, to get a clearer picture of the target at different ranges.

Inside the device, the reticle is designed to compensate for the lack of depth perception the sight has, and to accurately aim the weapon. The top part of the reticle is the range scale. It consists of one horizontal line with five vertical lines intersecting it. The bottom part designates the aiming points when using an M-16 rifle at various ranges.

On the top of the reticle the vertical lines tell how far away a six-foot man is. Place the target (six-foot man) on top of the horizontal line, and match it with one of the vertical lines above the horizontal line. The number at the top or bottom of the most closely matched vertical line is the distance to the target in hundreds of meters. By placing the horizontal line through the center of the target, and matching the target to a complete vertical line, the distance may also be discovered. Just halve the number at the bottom, or top of the line, and that is the range in hundreds of meters.

The bottom part of the scale is a crosshair that is designed for use with the M-16. The crosshair may be used with any weapon, but there is a system to using it with the M-16 sighted in for around two hundred and fifty meters (a twenty-five meter zero will accomplish this). When using an M-16 properly sighted in at two hundred and fifty meters, the center of the crosshair is where the bullet will strike out to two hundred and fifty meters. The top of the lowest hair in the crosshair is where

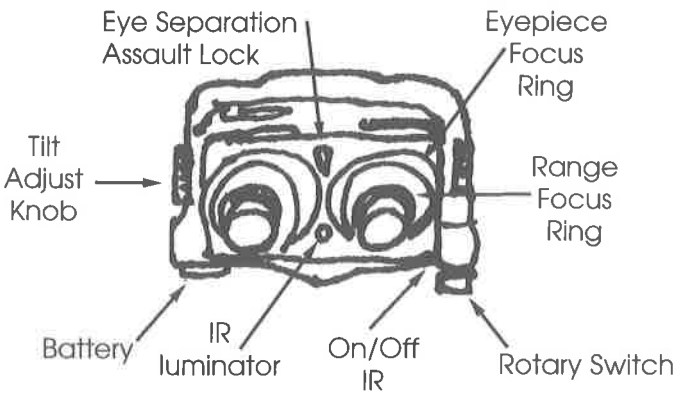
a M-16 bullet will impact at four hundred meters. The bottom of the lowest crosshair is where an M-16 bullet will impact at six hundred meters.

AN/PVS-5 NIGHT VISION GOGGLES

AN/PVS-5 night vision goggles are not a type of sighting equipment for a weapon. These goggles merely allow their users to see in almost complete darkness. These goggles are both passive and active. Passive means that they have the ability to see using only the minimal light that is present. Active means they can be used to illuminate a target of observation, with normally invisible infrared light, at close ranges. These goggles come with straps to mount them on the user's head. They also come equipped with batteries.

To operate the AN/PVS-5 night vision goggles, first remove them from their case. On the bottom right of the goggles is where the battery goes. Pull back the cap cover, and insert the battery inside with the protruding (negative) end up.

Take the head strap out of the case if it is to be used. The head strap has three snaps on it. One snap goes on each side of the goggles, and the middle snap goes on the top. Remove the lens caps from the inside of the goggles, and place the goggles against your eyes. Pull the head strap over the head, then pull



AN/PVS-5 Night Vision Goggles

the side bands tight. Now, pull the top band tight. Make sure that a comfortable, but snug fit has been attained.

Remove the lens caps from the outside of the goggles. Turn the rotary switch (located on the bottom left of the goggles) around to the "on" position. Adjust the eyepiece focus rings separately for each eye with the other eye closed to achieve the clearest image. The eyepiece focus rings are located on each of the protruding lens towers. They are the first adjustable rings at the base of the lens towers. Loosen the eyepiece separation lock (located on the front of the goggles, between the lens towers) to allow the eyepieces to be adjusted closer or further away for comfort. Turn the two dials located on either side of the goggles to adjust the cant of the eye pieces for comfort. The range focus knobs (located at the end of each lens tower on the front of the mask) should now be adjusted to allow for the best view to the area being observed.

If the inside of the mask goggles begins to fog up, use the demist shields. The demist shields should be placed inside the goggles, one directly over each eye piece.

If a map must be read, or some object examined closely, and there is not enough light, use the IR illuminator. This will turn on a small infrared emitting light that the goggles can pick up. Adjust the range focus knobs on the goggles to a sharp close-up image. Turn on the IR illuminator to see the map or object. Examine the object, then turn off the illuminator. Anyone else with night vision can see the light that the illuminator is emitting. Use it only when absolutely necessary.

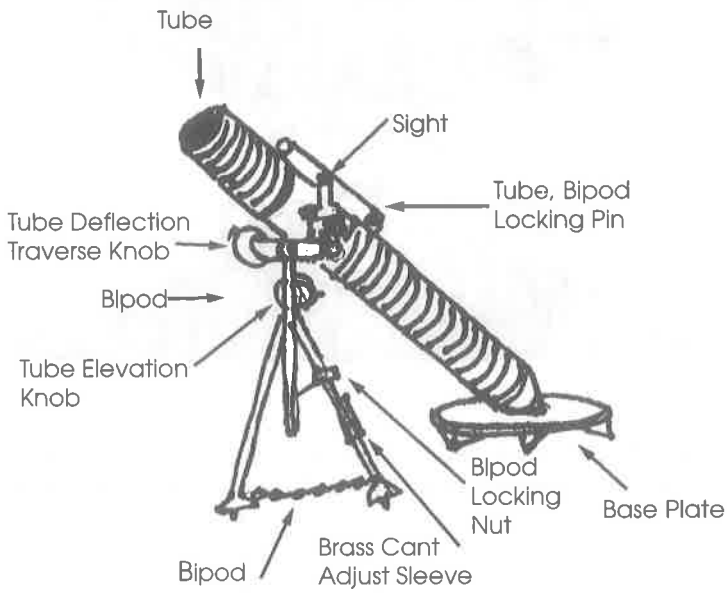
Chapter 4
Crew Weapons

This chapter is a description of how to work two of the smaller crew weapons used by the United States military and other world militaries. The two weapons that will be described are the mortar and the .50 caliber machine gun. These two weapons must both be manned by crews in order to be used at full efficiency. This is true if for no other reason than they are too heavy to be carried by one person for any amount of time.

MORTARS

This section on mortars will be a general description on how to operate a mortar. Since most mortars operate along the exact same principles, but with different sized rounds, detailed examination of the three types of mortar (60mm, 81mm, 4.2 inch) used by the U.S. forces is not necessary. The descriptions in this book follow the 81mm, and 60mm mortars most closely. Further descriptions of how to work a mortar in concert with an FDC are given in the next chapter.

In general, a mortar is composed of four sections. The tube is where the rounds are dropped, and fired. The bipod, and baseplate are used to support the tube and sight, and to aim the tube in accordance with the data on a sight. The sight is what elevation, and deflection data are actually put on, and contains the crosshairs that are aligned with the poles in order to aim the tube. The poles are placed out in front of the mortar along a certain azimuth to offer a reference point when aiming.



81 mm Mortar

Aiming a mortar is nothing like aiming a rifle. If a mortar is being used correctly, the target will never be visible to its operators. So, a system (that is fully described in the next chapter) is used to aim the mortar using a compass, maps, and other items. The main point to remember is that the mortar will be given data in the form of a direction to fire along called a deflection, and a charge and elevation to get the correct range.

The FDC section (a group of humans that compute the data to give to the guns) will send all the data that is needed to aim the gun to the mortar squad. The only responsibilities that the mortar squad has are to set up the gun correctly, change the data on the sights, aim the gun in accordance with the new data, and to fire the weapon.

THE MORTAR SIGHT

The sight used by a mortar is a simplistic device, though it may look confusing. It consists of two sets of numbered dials.

One to put deflection data (right, left) on the sight, and one to put elevation (up, down) data on the sight. It also has a bubble level to the rear of it to insure that the gun is not canted and one on the left side to insure that the proper elevation has been attained by the gun. The sight also has a set of optics containing a vertical and a horizontal crosshair. Only the vertical crosshair is ever used (by aligning it along the poles). The horizontal crosshair serves no purpose.

The theory behind aiming the sight, and the mortar, will now be explained. A magnetic azimuth is used when setting up the gun. Simply put, FDC will give the mortar crew an azimuth to aim the gun along. The mortar squad leader will stand behind the gun, and using a compass will ensure the tube is pointed in the right direction (more exact methods are available, but after the first fire mission the accuracy is the same). The squad leader should be sure to align the tube, not a portion of the bipod. This is the last time the mortar crew will use an actual azimuth from a compass when aiming the weapon. The rest of the time, data from the FDC, put on the mortar sights, will be all that is used.

Now that the tube is aligned along the proper azimuth, the sight must be added to the gun to allow for changes in aiming, and the poles must be set out to give the sight a point of reference to aim from. To do this turn the deflection knob on the sight (left side) until 28 is indicated on the deflection scale that circles around the sight (you can't miss it). On the knob itself is the fine tuning scale, which for now should read 00. Notice how the optics on the sight move when the dials are turned, but the aim of the tube is not disturbed. The sight is now set on a deflection of 2800, which is what the sight should always be set on when setting up the gun (it is not straight ahead, which would be 3200 on the sight, for reasons described in the next chapter). The elevation knob is located on the lower portion of the sight. Turn this knob until the larger elevation scale at the bottom of the sight reads 0800. The elevation knob is also the fine tune scale for the elevation scale, so ensure that it reads 00. The elevation of the sight is now set on 0800, which is what a mortar sight should always be set on when setting up. Now, if

it has not already been done, place the sight on the gun. The sight is not accurate until the bubbles are leveled. So, using the brass sleeve on the left bipod leg for cant, and the elevation control between the two bipod legs for elevation, level the bubbles. Do not use the deflection traverse knob (on the right side of the gun) to level the bubbles, this will change the azimuth along which the tube is laid. Using the other controls described will not disturb the tube. When the bubbles are leveled, the tube, and sight are correct.

To give the mortar squad a reference point to use when aiming, poles must be laid out in front of the mortar. One member of the mortar squad runs out to fifty meters in front of the gun with a pole. Another squad member looks through the mortar sight without disturbing the gun, and using hand signals, has the squad member holding the pole align the pole so that it is exactly along the left edge of the vertical crosshair in the sight. This includes having the correct cant in the pole. The horizontal crosshair is ignored. Next, the pole runner sets up another pole at twenty-five meters in the same way. Now the poles will be a reference point for aiming the sight.

If the FDC sends out a change in data, the new data is indexed on the deflection and elevation scales. Then the entire gun, sight and all, is traversed using the controls on the bipod (not the sight) until the sight once again is aligned with the poles. This takes care of aligning the gun on its new deflection that has been put on the sight. Once this has happened, the bubbles are once again leveled using the controls on the bipod to adjust for the new elevation setting and the cant. This is how the gun is aimed.

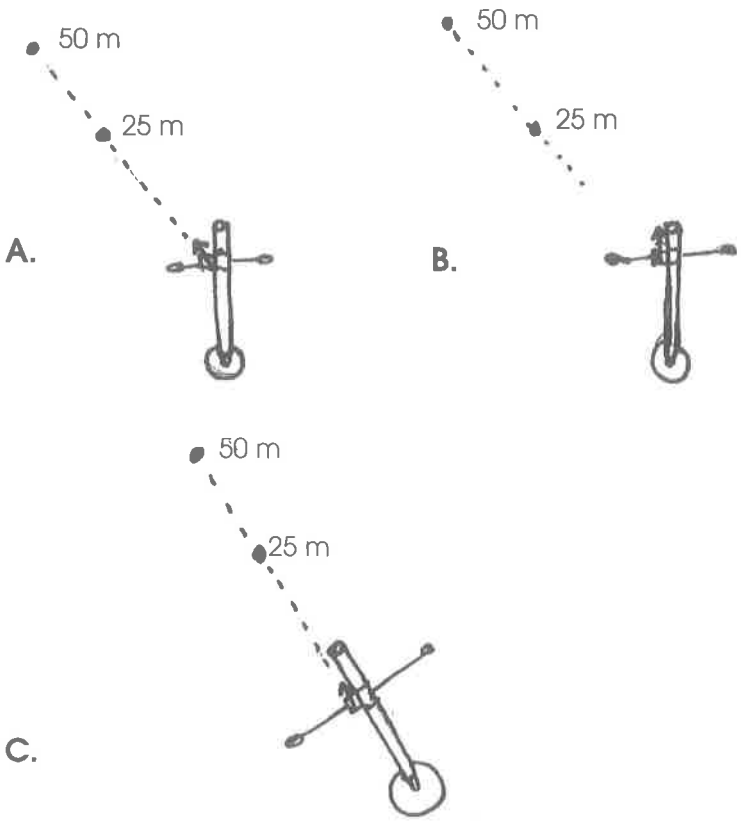
When data is put on to the sight, only the optics on the sight are moved. The gun itself does not move at all. When using the controls on the bipod, the entire gun, including the sight, is moved. By moving the entire gun, and sight until the sight is once again aligned along the poles, the difference in the aim is realized. Pretty simple stuff. The harder part (but not really hard part) is done by the FDC, which tells the gun what data to put on the sight.

An example of a typical fire mission after the gun is set up is as follows: The FDC gets a radio call with grid coordinates to fire at something. FDC (using processes described in the next chapter) computes the data that must be put on the mortar sight to hit the target. FDC tells the mortar squad what the data is. The mortar squad sets the sights on the data, then traverses the weapon using the controls on the bipod until the poles are correctly aligned in the sight. The bubbles are now leveled. When the sight is correctly aligned on the poles, and the bubbles are level, firing can begin. One mortar round (which had been prepared with the correct charge and fusing while the gun was being aimed) is dropped down the tube where it hits the firing pin and is launched into the air towards the target. After this round is fired, the bubbles are once again leveled.

Because the first round is rarely on target, the FDC will receive another radio call with aiming corrections. The new data is figured up and sent to the guns. The guns make the proper aiming corrections, and then fire another round. This continues until the rounds begin to hit close enough to the target. When the rounds are near the target, the gun will fire several rounds on the same data. The crew should level the bubbles as much as possible between each round to keep the gun accurate.

Things to watch out for when aiming or setting up a mortar are as follows: The two poles, used as reference points, will not always be properly aligned at some deflections. This will give the gunner confusion as to which pole to aim for with the crosshairs. When this occurs remember the rhyme, "high, diddle, diddle, far pole in the middle". This means that the crosshair on the sight should be aligned so that the far pole is directly in between the near pole and the vertical line on the sight. The far pole should be just as far away from the vertical line as it is from the near pole.

When aiming the mortar, it is allowed to pick up the bipod, as long as the base plate stays in place. Some deflection corrections will be so large that the entire bipod will have to be shifted, because the traversing control on the bipod does not cover enough space. Don't worry, because the overall lay in of the



Mortar Aiming Theory

A. Mortar sight aligned on poles at 25 and 50 meters.
B. Mortar receives new data, sight is changed.
C. Mortar and sight shifted until sight is aligned with poles again.

mortar is not affected as long as the poles are not disturbed, and the base plate stays in place.

When setting up the mortar, make sure that the brass sleeve on the left bipod leg has at least two fingers of play between it and its limits. Also make sure that there is plenty of room for the tube to be traversed on the bipod's deflection control.

When firing the first round some precautions must be taken. The sight must be removed, and someone must stand on the base plate. This is to ensure that the sight is not damaged, and that the base plate does not slip during firing. Removing the sight does not effect the overall lay in of the gun. Replace it to continue firing normally. These precautions only need to be taken when firing the first round.

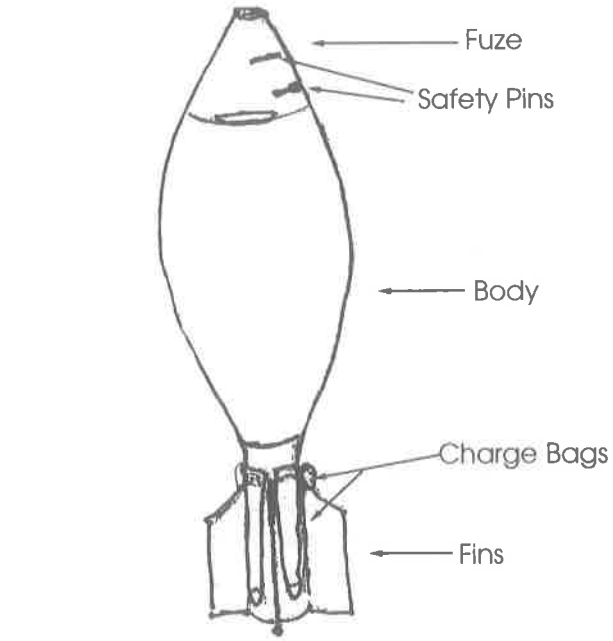
THE MORTAR ROUND

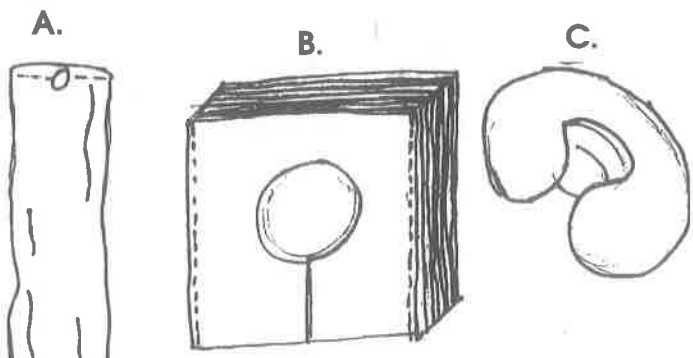
The mortar round consists of three parts. The fuse, the body, and the charge. The fuse and body often come preattached in the correct manner. The charges always come correctly attached, but some of them will need to be removed before the round is fired.

Fuses are used to cause the explosive in the round to detonate. They can be set to go off on impact, or with a slight delay after impact. Some fuses have the option of detonating a round a preset number of seconds after it has been fired. Most fuses will have safety pins inserted in them. These must be removed before firing.

The body of the round is what contains the explosive material detonated by the fuse. The body also contains the device that ignites the charges when it is dropped on to the firing pin in the tube. Some mortars use rounds that have fins on their bodies for stability in flight. Others use rounds that make use of grooves inside the mortar tube for stability in flight.

The charges on a mortar round come attached to the outside of it. They can be small bags of black power,. U shaped donuts, or booklets of flat plastic appearing "cheese charges". If either of the first two types of charges are on the round, charging the round is a simple matter of leaving the right number of charge packets spaced around the round in their correct loca-





A. Powder Bag Charge
B. Five Pack of Cheese Charges
C. Donut Charge

Typical mortar round and charges

tions. The cheese charges are slightly more complex. When dealing with the cheese charges, every two flat wafers equals one charge. They are set up so that charges can be divided into eighths by tearing off portions of the charges. Some of these charges will come sewn together in a large booklet called a five pack. A five pack is ten wafers sewn together to equal a charge of five. A round that uses cheese charges will often come with one bag of black powder on it as well. If this is present, it counts as a five pack. Charges in excess of thirty are not uncommon when dealing with cheese charges.

FIRING THE MORTAR

Firing the mortar is a simple process of dropping the correctly fused and charged round down the tube, fins first. When the round reaches the bottom of the tube it will hit a stationary firing pin. This will cause it to ignite the charges around the outside and bottom of it, making them explode. This explosion is what propels the round toward the target.

When firing a round, one should do it in the following manner. Grasp the round in both hands, and hold it over the tube. Let go of the round, and sweep both hands downward, along the outside of the tube at the same time. Doing this will ensure that no body parts cross the opening of the tube. A round fires immediately after being dropped, and crossing the tube with a hand could cause it to be blown off.

ASSEMBLING A MORTAR

A mortar is a very easy weapon to assemble. It generally will consist of three parts; a tube, a base plate, and a bipod or other support device.

To assemble an average mortar (60mm, or 81mm), first extend the legs of the bipod, and lock them in place using the wing nut type lock provided. There will be a chain on the legs of the bipod to keep them from extending too far.

Stick the tube through the yoke on the bipod. The yoke is an obvious round support for the tube located at the top of the bipod. There will be a pin that goes through a section of the tube and through a brace on the yoke to hold the two together.

Now, the end of the tube with the ball joint on it should be attached to the base plate. Insert the ball joint into the hole in the base plate and then turn the tube until it cannot be removed. The tube can spin freely.

Attach the sight to the left side of the bipod where the proper socket is located. Make sure it is on the setup data of 2800 for deflection, and 0800 for elevation (these are the settings FDC will begin working from). The mortar has now been assembled.

THE M2 .50 MACHINE GUN

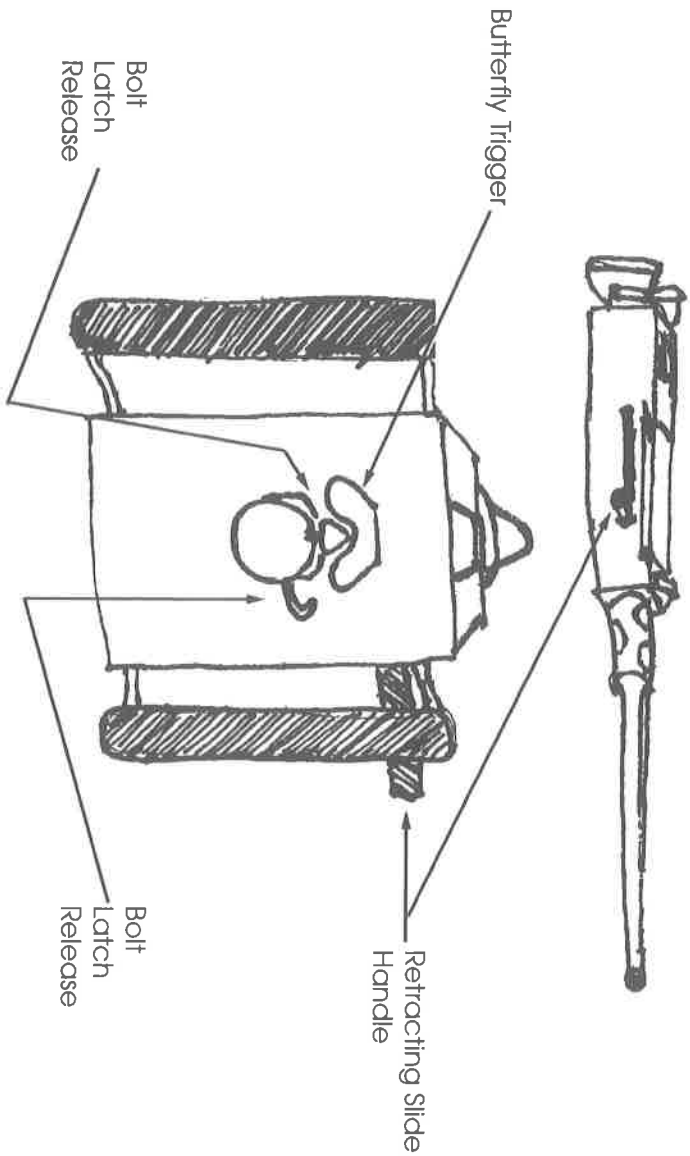
The .50 machine gun is a large, automatic weapon with incredible destructive power. It fires rounds which are one half inch across. This weapon can puncture 3/4 inches of steel with one shot, and can defeat most lightly armored vehicles when fired at them, and making repeated hits. The .50 machine gun is most often mounted on vehicles, but can be mounted on a tripod.

To load the .50 start with the bolt forward, and the cover closed. Insert the double looped end of the ammunition belt into the feedway on the left side of the weapon until the first round is engaged.

Between the handles on the weapon will be a cylindrical object, a butterfly switch, and a second switch slightly under the butterfly. The second switch is the bolt latch release. Hold this down and turn the cylindrical object until the brace on it holds the bolt latch release down. This will ensure that the weapon will fire on full automatic, and should always be done while loading. If the bolt latch release is up, the weapon will fire on semiautomatic.

Now, with the first round engaged, and the bolt latch release locked down, jerk back the slide handle to the rear and then release it. Pull the handle to the rear a second time and release it again. The weapon is now loaded.

To fire the weapon, locate the butterfly switch in between the two handles. Grab onto the handles with both hands, and push the switch down. The weapon should be firing. If the weapon has a jam, clear it by pulling back on the slide handle and ejecting the dud round. Then resume firing.

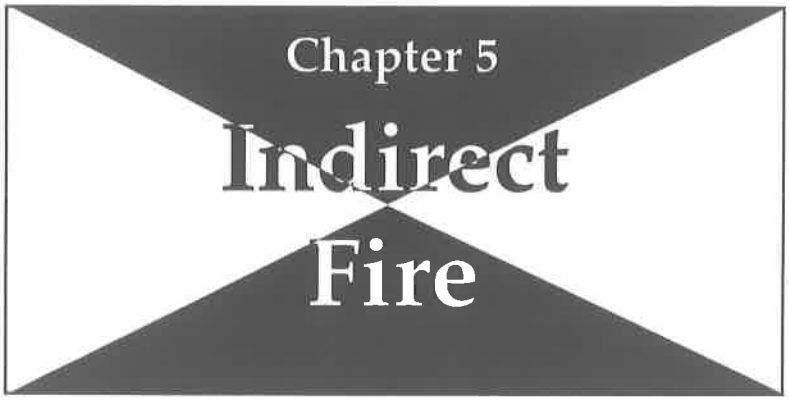


M2 .50 calibermachine gun

To unload the weapon after it has not been fired, follow these steps: Let the bolt latch release switch up. Raise the cover of the gun up. Pull the extractor off of the ammunition belt, and lift the ammunition out of the weapon. Pull the bolt to the rear, and examine the workings and chamber of the weapon for rounds.

To unload the weapon after it has been fired, follow these steps. Let the bolt latch release switch up, so that the weapon is in single fire mode. Fire the round in the chamber. Open the cover and remove the ammunition belt. There will be one round still in the weapon. Close the cover and press down on the bolt latch release, allowing the bolt to go forward, chambering the last round. Fire the last round.

The easiest way to unload the weapon is to fire off all of the rounds in a belt. A belt may be twisted to break it off prematurely so fewer rounds are wasted.



In all the books I've seen on warfare, I've never seen anything that dealt with how to call for, and direct indirect fire. It seems odd to me that no one has ever addressed the issue of how to correctly employ the military leader's most powerful set of weapons, the artillery. In this chapter I will be informing the reader on the basics of how to correctly use a mortar section to its full potential. I will inform the reader on how to use military plotting boards, and methods. I will also inform the reader on how to use a field expedient method of FDC that I devised to work with a minimum of equipment, and on any map of sufficient detail.

Indirect fire is cannon, mortar, or rocket fire that is fired from a position that cannot see the target. It is called for, and directed through radio or flag by a forward observer. The FDC section of the artillery that is firing works up firing data from the observer, corrections, and target descriptions. The gunners on the artillery pieces put the data on their sights, aim the artillery, load it, and fire it.

FORWARD OBSERVERS

The FOs (forward observers) are the eyes of the indirect fire system. They have the job of being on the front line, observing the enemy, and calling for fire. Any person with the proper training can be an FO. It does not have to be a designated position. Most often the job of being an FO will fall to whoever has the

radio set. Make sure that radio operators know these basics. To start with, the FO must have a firm grasp of all of the basics of map reading described in chapter seven. Items an FO will need are a radio (or other signaling system), a compass, a map reading protractor (available in any surplus store), and a map of the area (preferably a military one, but an expedient method that uses any map of sufficient detail will be described later). The following will be descriptions of some simple processes an FO must understand.

MILS

An FO must operate using mils instead of degrees when determining directions. Mils are much more accurate, as there are 6400 mils in a circle to just 360 degrees. Other than that they are the same thing as degrees. A scale of mils is given on the outside of every military protractor as well as a scale of degrees. Scales in mils are printed on the insides of military binoculars.

MILS TO METERS

Mils can be used to determine lateral distances. The ability to use mils to determine lateral distances is an important skill to have when adjusting fire. The FO will use this ability to aid him in determining the proper corrections to radio to an artillery unit.

To determine how many mils there are between one object and another (like the last round fired, and the target you want to hit), and hence the meters, you can use the mils scale inside a set of binoculars. If you do not have a set of binoculars then you can use this expedient method. Hold your hand out at arm's length with your palm facing out and your fingers pointing up. The width of your index finger is thirty mils. The width of your index and middle fingers together is seventy mils. Adding your ring finger you have one hundred mils. And finally, adding your pinky you have one hundred and twenty-five mils.

To convert the mils between two objects to meters the FO must determine the distance to the target from his location. This is done by checking the location of the target on the map, and

the FO's own location, then using the scale determining the distance between the two points in meters. A range estimation technique may also be used. The football field range estimation technique involves figuring how many football fields (which are roughly equivalent to 100 meters) would fit between the FO and the target. The FO should already know where the target is on the map, and his own location anyway, and better results will occur using the map. Once the FO has determined the distance to the target, and the number of mils between the two distant points he can use the following formula to determine the number of meters between the two points.

W=MR

"W" is the number of meters between the two objects. "M" is the number of mils between the two objects. "R" is the range from the FO to the target expressed in thousands of meters (for example 3000 meters is 3, 2400 meters would be 2.4).

ADJUSTING FIRE

During any fire mission, unless it makes a first round hit, the FO will be required to radio any adjustments to the mortar or artillery section. All adjustments should be given relative to him, not the artillery that is shooting. They should also be rounded off to the nearest twenty-five meters, preferably in fifty or one hundred meter increments. Corrections should also be given in the form of commands. An example of an FO correction on a round that has hit two hundred meters further away, and one hundred meters too far to the right than it was supposed to would sound like "drop two hundred, left one hundred" (other commands would be stated as "add" or "right").

CALL FOR FIRE

The call for fire is the initial contact the FO makes with the FDC (place where fire is directed and controlled) of an artillery unit. A call for fire contains all the initial information an FDC will need to fire its first round. The call for fire will contain slightly different information depending on the type of fire mission the FO is calling.

GRID MISSION

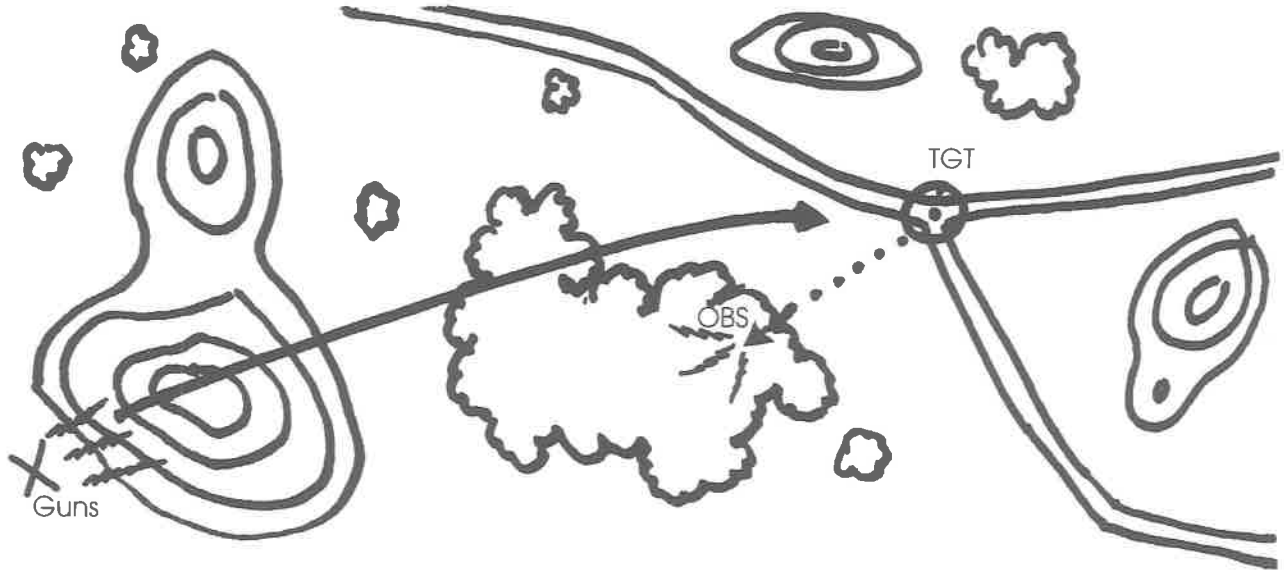
A good basic fire mission is a grid mission, and its call for fire contains the following information: The FO's call sign so the FDC knows which observer to compute the corrections from. Whether the FO wants to adjust fire, or a fire for effect, the former brings rounds in one at a time to be adjusted until a fire for effect will be on target, the latter calls for an instant fire for effect which brings down a hail of rounds instantly. The grid location of the target, determined from the map. A target description, so the FDC can use the correct type of fuse setting and round if it has that option. The observers grid location, if the FDC needs it, and his direction to the target. The direction to the target can be used to adjust rounds instead of the observer giving his grid location.

POLAR MISSION

Another fire mission is the polar mission. In this mission the observer sends the target location relative to himself, and not as a grid coordinate. Other than that it is the same as a grid mission. A polar call for fire will contain the following information: The FO's call sign; whether he wants to adjust fire or fire for effect; that the mission is a polar mission; the direction to the target from the FO that the FO has determined from a compass; the distance to the target from the FO. A target description; and the FO's grid location if FDC needs it.

SHIFT MISSION

A last type of fire mission is the shift mission. In this type of mission the FO sends the initial data relative to a known point on a map, provided that one has been predetermined by both the FO and the FDC. It is basically like adjusting fire. A shift call for fire would contain the following information: The call sign of the FO; whether the FO wants to adjust fire or a fire for effect; that the mission is a shift mission; which known point the shift is being made from; the amount of drop, add, right, or left the FO has determined is necessary to hit the target relative to himself; a target description; the FO location if FDC needs it; and the FO's direction to the target.



Typical call for fire situation

That is really all a forward observer needs to know. If he can call for fire, and adjust it when it is off, then he is set.

FDC

FDC is where the forward observer's data is converted into firing data for the guns. I will use the example of a mortar section, because that is realistically what you will probably use. The concepts and skills do, however, translate directly over to artillery. I will describe how to compute the data using simple military equipment. I would assume that if you could get hold of a mortar, you could also get hold of the proper FDC equipment, but in case you can't I will later describe a field expedient method of computing the data. You should pay attention to the military way to get the concepts no matter what.

An FDC section should have certain equipment when computing data. FDC will need an M-16 plotting board, pencils, a radio, a map, a protractor, paper, and a charge book or abridged charge table. The plotting board is a large flat object that has a set of grids, and a turnable wheel attached to it. A charge book is a book that tells the FDC what charge and elevation to use depending on the range they have to shoot.

FDC will give data to the guns in the form of deflection, elevation and charge. Deflection is the lateral aiming of the gun. It is given in mils, and is basically the direction the gun is to shoot. Deflection should not be confused with the magnetic direction, as magnetic direction is always 6400 to the north, and deflection is relative to whichever way the gun happens to have been originally set up. Elevation is the vertical aiming of the gun, and corresponds to how much the barrel is raised or lowered. The charge is how many packets of propellant are used to launch the round.

THE PLOTTING BOARD

The plotting board is like a map without terrain features that can be used to represent any part of any map. The FDC decides what part of the grid on the board they want to use to

represent where they are. Then they determine where the FO is, and where the target is.

BELOW THE PIVOT POINT METHOD

The first method of FDC, using the M-16 plotting board I will describe is the below the pivot point method. We will start as though FDC was traveling along and received a grid mission from a patrol (it is possible to prepare the board in advance and wait for a mission, it follows the same procedure). First FDC checks out where it is on the map, and the location of the target. FDC uses a protractor to determine the direction to the target, and writes it down on the piece of paper. Then it takes that direction and rounds it off to the nearest fifty mils (preferably hundred as it makes reading the board easier). This is the mounting azimuth the guns will use to set up facing the right direction. The mounting azimuth is noted on the paper as well as given to the guns.

So you won't be confused later, a mortar sight has 3200 fixed on it as straight ahead. So, if the mortar receives a mounting azimuth of 2700 it will set up facing the magnetic direction of 2700 with the deflection scale on the sight showing 3200. This, fortunately is the last time the magnetic direction is used, and all operations will be performed using the deflection scale on the sight. Now, though 3200 is straight ahead, the mortar does not need to set up using 3200 as its first deflection, and it won't. If 3200 is used, the tube of the mortar will block the sight when the sight is set at certain extreme deflections. So, the mortar will be set up using the deflection of 2800 at all times. The idea is really simple. It just seems like a lot of work was created for nothing. That is what is so confusing about it. All that really has to be done is set up the mortar on a deflection of 2800, with the tube facing the direction given as the mounting azimuth.

To set up the board, rotate the numbered wheel until the mounting azimuth appears at the top. The wheel will be numbered from zero to 6400. Align the correct azimuth with the tick mark at the top of the immovable part of the board. Next, just below the mounting azimuth, pencil in 28. This represents 2800, which is the deflection the guns will be on when they fire

in the direction of the mounting azimuth. This should be starting to make sense about now. Now go to the left of the 28, to the next number that is written in hundreds. Below this number write 29. Under the next write 30, and the next 31. Go to the right of the 28 and put 27, 26, 25, and 24. You can continue farther if you have to in either direction. The numbers you put down should be going in the opposite direction from the numbers that are already present on the wheel. That is just another oddball thing about mortar sights, they are numbered backwards.

Now to get the deflection to fire the first round, index the direction of fire (the first thing you wrote down, and got from the map) on the scale that was already present on the spinning wheel. Now, on the scale you penciled in, which is the deflection scale, read the deflection. To read the scale, the first two digits for the deflection are the numbers that you penciled in. The third digit comes from seeing which tick mark on the wheel passes the zero mark on the immovable part of the scale. The corresponding number is the digit. You should keep in mind which way the numbering you have penciled in is going, and read the third digit accordingly. For the fourth digit use the side of the immovable scale that is to the left of the zero. From those ten tick marks decide which one best lines up with one of the tick marks on the spinnable wheel. The one of those ten marks that does line up best is the one that you want as your fourth digit for your deflection.

To determine the range to the target, and hence the elevation and charge, refer back to the map. Lay the edge of a piece of paper along the line between the target's grid location, and the position of the mortar, making tick marks at both places. Refer to the scale on the map to determine how many meters the target is away from the mortar. Write this down on your paper. Now, keeping the deflection indexed go five hundred meters right, and two thousand meters down (each of the large darker squares is five hundred meters) and plot your mortar point. Go straight up from the mortar point the range you figured from the map and plot the target (each small square is fifty meters). FDC takes the range to the target and looks it up

on its range tables to find out the correct elevation and charge, and gives the entire lump sum of firing data to the guns. Deflection, elevation, charge, and how many rounds of what type are to be fired. If more than one gun is being used FDC should also state which gun is to fire. All guns should set up and follow the data.

To make a correction as dictated by the FO after the first round is fired, round the FO's direction to target to the nearest ten. Index the new FO's direction to target, on the spinning scale that was already there before you penciled in your own. When indexing on this scale you are reading in the opposite direction that you were when using your own scale. The first two numbers come from the hundreds imprinted on the spinning wheel. The next digit is the number that the zero mark is on. Since the FO's direction to the target has been rounded to the nearest ten, there will be no fourth digit. Now make a triangular tick mark on the wheel pointing straight to zero to mark the FO's direction for easy reference. Now, keeping in mind that each small box is fifty meters and each large one is five hundred, go right, left, up, or down on the wheel the amount the FO requested. You can do this using those superimposed blocks below the spinning wheel because you are now aligned along the observer's sight path. Once the new location is marked, turn the wheel back until the mortar point and the corrected location of the target are directly in line once more. The two points should be equidistant from the same vertical lines if they cannot be actually aligned along the same line. Now read the deflection scale you penciled in for the new deflection. To figure the range, count the boxes or use the scale provided. Now look up the range in the charge tables to get the elevation and charge, and send all the data to the guns.

The reference point is the final location of where the observer decides that he is close enough to do a fire for effect. This should be labeled on the board as the actual target location, and numbered. The first one will be reference point one. To make your guns more accurate on the first shot in future missions being fired from the same place, figure up the difference in range between the originally reported target location,

where the observer said the final rounds were on target. If the final round was above the originally reported target location, then add the range difference to every following shot. If the final shot was below the originally reported target location, then subtract the difference from every following shot. Also, have the gunner on the mortar level up all the bubbles on the sight after the last round was fired using only the brass sleeve and the elevation control on the bipod. Then have the gunner put the original deflection and elevation on the sight that was figured for the first round. The gun and the sight are now both in line with where the target really was. Another member of the mortar squad should then run out in front of the weapon and realign the sight poles, as per the gunner's instructions, while the gunner looks through the sight on the weapon. This process will correct minor errors made when setting up the guns. If the FO didn't send you an accurate target grid, skip this because you are relying on him for good data to make this work. To continue using the plotting board without setting it up again, request that the FO use the shift method of calling for fire in future missions. There are ways of setting up the board to fire repeated grid missions, but the basics are enough.

THE PIVOT POINT METHOD

A simpler way to use the M-16 plotting board is the pivot point method. This way has the advantage that it is easier, and it allows the mortars to fire in all directions. The disadvantage is that it does not allow FDC to compute for far distant ranges.

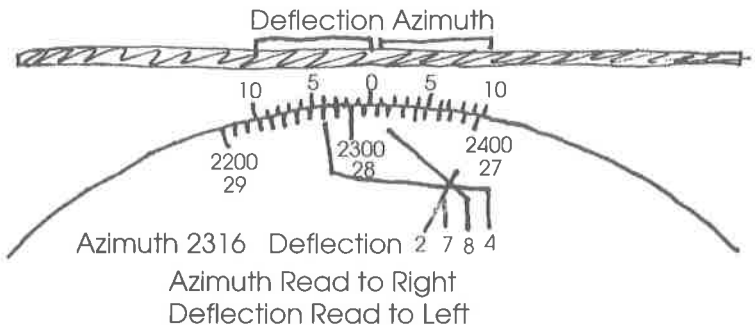
Assume that FDC is traveling down the road and receives a call for fire. First they determine their position on the map. Then they pull out their pencil. Using the pivot point as the mortar location, turning the wheel to 6400, and using the grid printed below the wheel to ensure correct spacing, FDC will number the correct latitudinal lines, and longitudinal lines on the plotting board to represent the numbered lines on the map using the mortar point as a reference. Now, FDC has turned the plotting board into a map that it can plot targets on.

FDC should now use the map grid they have placed on the plotting board to mark the target's location. Turn the wheel on

the board so that the target is aligned straight up, over the mortar point. To get the mounting azimuth, FDC should read the scale at the top of the board and round it to the nearest fifty mils. Send the mounting azimuth to the guns.

To number the plotting board with a deflection scale FDC should begin where they decided the mounting azimuth was located. Under the tick mark representing the mounting azimuth, not the one that is indicated by the scale, start by writing 28 (for 2800). Then, just as before, number every hundred mils to the left in an ascending fashion, and to the right in a descending fashion.

Figuring the deflection, charge, and elevation is now easy. Just read the deflection scale FDC placed on the board while the target is aligned straight up for deflection. Read the scale that is printed beneath the spinning wheel to determine the range. Now look up the range in a firing table to determine the



How to read the scale at the top of the M16 plotting Board.

charge and elevation. The data for the first shot is now complete, and should be sent to the guns.

To make corrections in the shot for the FO, index his direction to the target on the spinning wheel's original mils scale. FDC should make a mark for easy reference at this spot at the top of the scale. Now go up, down, right, or left using the grid

below the wheel as a guide to mark the FO corrections. Now mark the area the FO wants you to correct to and align it straight up as you did with the original position. Read the scales to determine deflection and range. Use the firing table for range and elevation, and send the data to the guns.

For added accuracy in later missions, tell the guns to level up their bubbles on the last data fired after the fire mission is over. Now the guns should adjust the deflection on the sights so that it reads the original firing data for the first round, without moving the guns. The guns should now knock down the sight poles, and realign them within the sight picture of the sights. This will compensate for wind speed, temperature, and minor deviations made when setting up the guns. The theory is that where the guns are pointing at the end of the mission is closer to the target than where the first round hit. So the realignment of poles is to bring the sights on line with where the guns are pointing. This method of making the guns more accurate does not have to be done after each mission, it can be done whenever needed.

FIELD EXPEDIENT FDC

The above descriptions of how to use the M-16 plotting board is probably hard to follow if you do not have one. I will now describe my method of expedient FDC that will be much easier to follow. To do it requires a few common items, and a little common sense. One of the great benefits of it is that it will work on any map that is of sufficient detail and has longitudinal and latitudinal lines that are no more than one and five eighths of an inch apart. Both the FDC and the FO must use copies of the same map if it is not of military quality. The FDC should keep several maps on hand if possible, because this method requires poking pins in the map.

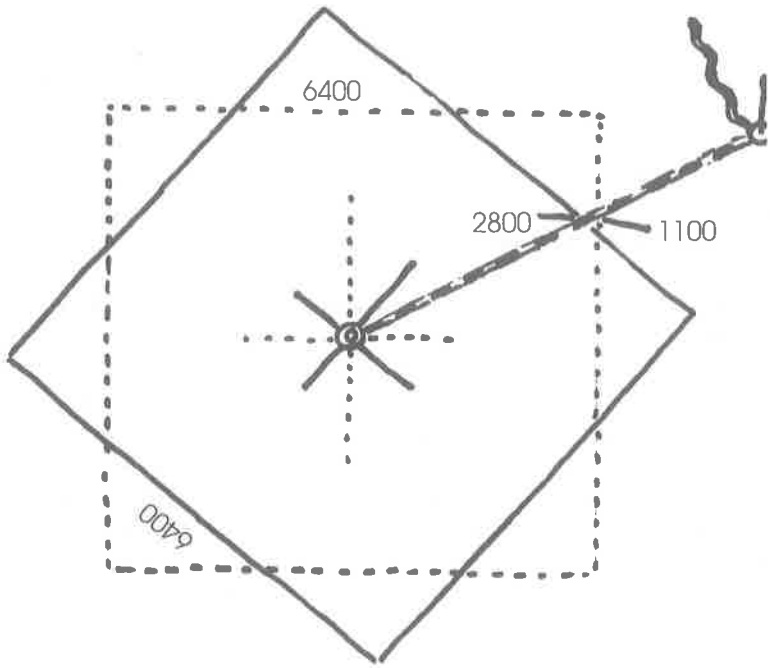
To use the expedient method the FDC section will require a thin board of about two feet by two feet or bigger, three protractors, four pins (a good mix of plastic and straight pins), one two foot long piece of string, one one foot long piece of string if you are not using a military map, one tablet, some tape, and a pencil. The two and one foot strings should be placed along

the scale of the map, and have tick marks made along them every 100 meters.

Assume once again that the FDC is traveling along with the mortar section, and receives a grid fire mission from a distant observer. FDC stops movement and locates its own position on the map. Next FDC places the map flat over the board with its own position in the center. One protractor is now placed directly over the position of the mortar on the map with its mils scale aligned correctly (6400 as north). The protractor has a cross hair in the center to ensure you have the mortar point in the center. Next, take a second protractor, turn it upside down, and place it over the first, again with 6400 straight up. The second scale protractor should read backwards because it will be upside down. Take a plastic tack, affix one end of the two foot string to it, and pin the two protractors down so that the mortar point is their common axis.

Now the FDC needs to locate the target. To locate the target on the map with a military map just use the regular method given in the navigation section for locating points on a map. If you are using a nonmilitary map it may be a little harder because instead of numbers along one axis there will be letters, and the longitudinal, and latitudinal lines may not be at a distance apart that corresponds with any of the scales on the protractor. To clear away the confusion, just use the same right and up method for map reading using a letter if one is indicated instead of a number for the first two digits on both the right and up coordinates. For the next two digits, both right and up, use the smallest scale on your protractor that extends beyond the squares on the map, or fits perfectly to gauge distance within the longitudinal and latitudinal boxes. It doesn't matter whether the distance between the lines on your map is in miles or kilometers. As long as the FDC, and the FO are using the same map, and protractor scale they will get the same coordinates. Once the target location has been found on the map, mark it with a pin.

Now, turn the top, upside down protractor until 2800 on its mils scale is on line between the mortar and the target. Use the string on the tack as a guide. Make sure the bottom protractor



Field expedient FDC, target at map direction of 1100, deflection of 2800, range of 2200 meters.

is still aligned with 6400 facing north. Now tape the two protractors down with a little tape. The point on the bottom protractor's mils scale, where it lines up with 2800 on the top protractor's mil scale, is the mounting azimuth for the guns. Send the mounting azimuth to the guns and they will set up on a deflection of 2800 along the mounting azimuth.

Now take the string and figure the range to the target with it. Pull it taut in a line from the pin it is affixed to towards the target, counting the tick marks in between. Estimate as best as possible when the target falls between two tick marks. Look up the range on a firing chart to get the elevation and charge on the first shot. The deflection will be 2800, which is what the guns set up on. The data for the first round is now prepared.

To adjust fire you must now mark the observer's location on the map with a pin or a pencil mark. Use the correct scale on a protractor to figure his corrections by overlaying it on the map and aligning it relative to the FO's position if you are using a military map. The distance between each number on the scale will be one hundred meters. If using a nonmilitary map use the one foot string aligned relative to the FO's location to figure the corrections. Stick a new pin in to mark the correction, leaving in the original pin. Now use the two foot string that is attached to the pin in the two protractors and pull it taut between the new target location and the mortar point. The new deflection is read off of the upside down protractor's mils scale where the string crosses it. The corrected range is determined, again, from the tick marks on the string. Look up the range on the firing tables for the elevation and charge. Send the new data to the gun. This correction process is repeated as needed until a fire for effect is called for. After each correction leave the original target pin in its spot, and move only the second pin for each correction.

For added accuracy on later missions, follow these instructions. After the fire for effect, and the mission is over, mark the original spot on the map where the FO said the target was with a pencil as known point one. The pin can be removed. Tell the gunners to level up their bubbles, but keep the guns on the last data fired. Now set the original deflection for the first round of

the mission on the sight. It will be 2800 if this was the first mission fired using this method. The gun should not be rotated, only the sight. The gunners should now knock down their sight poles and realign them within the sight picture. This process will correct for minor deviations made when setting up the guns, wind speed and temperature. It does not need to be done after any mission but the first one, or by choice later on. If all the talk about sight poles and bubbles confuses you, refer to chapter five's section on mortar operation.

FIRING TABLES

Reading firing tables to convert range data to elevation and charge is a skill that FDC must have when using most mortars, or any type of artillery. Firing tables will come in the form of a book, called a charge book, or a single sheet of paper called an abridged charge table. A charge book will be made for a certain type of weapon. It will not work for all artillery. A charge book will contain several sections, each devoted to a particular type of round (white phosphorus, smoke, and high explosive all weigh different amounts). Each section will be further divided by charge amount, listing every range that you will be able to hit with a particular charge, and the elevations needed. An abridged firing table works only for one type of round, and one type of weapon. Often abridged firing tables are included inside crates of rounds. An abridged firing table will list every range that the weapon is capable of hitting and two sets of charge, and elevation that can be used to reach that range.

A 60mm mortar has a feature that makes charge books unnecessary. At the base of the tube there is a floating ball scale that is used to determine the charge. Just cant the tube until the correct range is indicated on the scale. The tube will be at the correct elevation once this is done. Once the gun has its sight bubbles leveled, and the correct range indicated, the floating ball scale will also be indicating the correct charge.

DIRECT LAY

Mortars do not need to be fired in an indirect method. There is a method of engaging targets that are in sight of the guns

RANGE M	ELEV MILS	CHG	ELEV MILS	CHG	RANGE M	ELEV MILS	CHG	ELEV MILS	CHG
75	1608	0			1350	1034	2	1224	3
100	1475	0			1375	1014	2	1216	3
125	1446	0			1400	983	2	1204	3
150	1412	0			1425	966	2	1197	3
175	1379	0			1450	942	2	1186	3
200	1344	0	1502	1	1475	908	2	1178	3
226	1309	0	1480	1	1500	806	2	1169	3
250	1271	0	1476	1	1526			1159	3
275	1231	0	1465	1	1550			1146	3
300	1100	0	1462	1	1575			1136	3
326	1142	0	1439	1	1600	1246	4	1128	3
350	1088	0	1427	1	1626	1241	4	1117	3
375	1026	0	1414	1	1650	1234	4	1106	3
400	934	0	1400	1	1675	1227	4	1094	3
426			1387	1	1700	1220	4	1082	3
450			1374	1	1725	1213	4	1070	3
476			1360	1	1750	1206	4	1057	3
500	1429	2	1346	1	1776	1199	4	1044	3
526	1420	2	1332	1	1800	1191	4	1029	3
550	1411	2	1316	1	1825	1184	4	1015	3
575	1402	2	1303	1	1850	1176	4	999	3
600	1393	2	1286	1	1876	1168	4	982	3
626	1384	2	1273	1	1900	1160	4	963	3
650	1375	2	1267	1	1925	1152	4	943	3
675	1365	2	1241	1	1950	1144	4	919	3
700	1356	2	1226	1	1975	1136	4	891	3
725	1345	2	1208	1	2026	1119	4		
750	1336	2	1191	1	2050	1110	4		
775	1326	2	1173	1	2075	1101	4		
800	1314	2	1154	1	2100	1091	4	1206	5
826	1304	2	1134	1	2125	1082	4	1199	5
850	1294	2	1113	1	2150	1072	4	1193	5
875	1286	2	1081	1	2175	1061	4	1187	5
900	1276	2	1056	1	2200	1051	4	1181	5
926	1264	2	1042	1	2226	1040	4	1174	5
950	1254	2	1014	1	2250	1028	4	1166	5
975	1243	2	982	1	2275	1017	4	1161	5
1000	1231	2	946	1	2300	1004	4	1154	5
1025	1230	2			2325	991	4	1147	5
1050	1208	2			2350	977	4	1141	5
1076	1196	2			2375	962	4	1133	5
1100	1184	2			2400	946	4	1126	5
1126	1171	2	1296	3	2425	926	4	1119	5
1150	1160	2	1290	3	2450	908	4	1112	5
1175	1144	2	1282	3	2475	884	4	1104	5
1200	1131	2	1274	3	2500	854	4	1096	5
1226	1116	2	1268	3	2525	802	4	1088	5
1250	1101	2	1258	3	2550			1080	5
1275	1086	2	1250	3	2575			1072	5
1300	1068	2	1241	3	2626	1163	6	1055	5
1326	1052	2	1233	3	2650	1156	6	1046	5

RANGE M	ELEV MILS	CHG	ELEV MILS	CHG
2675	1152	6	1034	5
2700	1146	6	1027	5
2725	1140	6	1017	5
2750	1134	6	1006	5
2775	1128	6	996	5
2800	1121	6	984	5
2825	1108	6	960	5
2850	1096	6	931	5
2875	1081	6	807	5
2900	1067	6		
3050	1051	6		
3100	1036	6		
3150	1019	6	1123	7
3200	1001	6	1112	7
3250	981	6	1108	7
3300	960	6	1084	7
3350	934	6	1076	7
3400	908	6	1063	7
3450	874	6	1048	7
3500	821	6	1036	7
3550			1020	7
3600			1004	7
3650			987	7
3700	1075	8	960	7
3750	1063	8	940	7
3800	1061	8	926	7
3850	1036	8	901	7
3900	1024	8	868	7
3950	1010	8	823	7
4000	986	8		
4050	979	8		
4100	962	8	1054	9
4150	944	8	1042	9
4200	923	8	1030	9
4250	900	8	1017	9
4300	871	8	1004	9
4350	831	8	980	9
4400			975	9
4450			958	9
4500			941	9
4550			921	9
4600			900	9
4650			873	9
4700			838	9

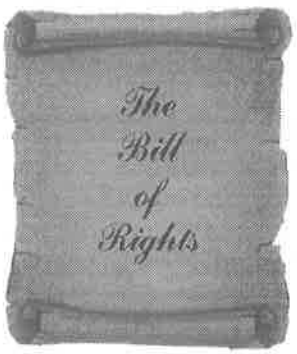
that mortar crews should be familiar with called direct lay. The process is a simple one. The mortar should align its sight on 3200, which is straight ahead. The crew should then traverse the barrel until the cross hair on the sight splits the target. The range to the target should now be estimated, and looked up on a firing table to get the elevation and charge. Once all the bubbles are level on the sight, the round should be fired.

If the round missed, level up the bubbles on the sight. Then adjust the sight only until it splits the point where the round landed. Traverse the barrel until the crosshair splits the target once more (if the talk of adjusting the sight, and the tube separately confuses you, check mortar operation in chapter five). Recalculate the range if it was off, and determine the correct charge and elevation. Fire the second round. Repeat the above process as needed until the round hits the target.

USES OF INDIRECT FIRE

In all, the process of calling for and supplying indirect fire is a rewarding one. For the FO there is the omnipotent feeling of being able to destroy anything in sight without giving away his position. For the guns, and the FDC there is the devious pleasure of sitting in safety, miles away from the target, and squashing it like a bug. Just imagine the havoc that could be created.

The uses of indirect fire are many. A front line unit can use it to stop the advance of an enemy. When the destruction of a building is necessary it can be used instead of commandos. Any target visible within the radius of the gun's range can be destroyed or suppressed. Indirect fire weapons can be the military leader's greatest asset when properly used.


The
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Chapter 6
Land Navigation

Land navigation is the skill that allows a person to travel from one point to another using a map, compass, and a protractor. Successful land navigators are able to leave from one obscure point on a map, and arrive at another equally obscure point on a map with little or no difficulty. It is an essential skill for all combat personnel to learn. Land navigation requires no sense of the land that is being traversed, or special backwoods knowledge. There is a method to it that is simple, both to learn and to use. This chapter is a discourse on the methods of land navigation. After reading this chapter, anyone should be able to travel from one point to another using a map, compass, and protractor.

THE MAP

Before anyone goes out to land navigate, they should have a map. Maps are especially handy when coordinating military operations, and should be carried by as many personnel as possible. This section will be a discussion on how to read the most useful of all maps, the military map. Maps can be purchased at specialty stores, or ordered from ads in the back of military magazines, such as *Soldier of Fortune*.

MAP COLORS

The five colors on a military map all identify a different class of objects. Just by looking at the objects on a map, without

using the colors, it is often easy to tell what they are. The colors are an additional aid in identifying objects. The colors stand for classes of objects as follows:

1. Black = man-made features including railroads, buildings and some roads.
2. Blue = water.
3. Brown = all relief features (changes in elevation that make up the terrain). This includes contour lines.
4. Green = all vegetation.
5. Red = major roads.

TOPOGRAPHIC SYMBOLS

Topographic symbols on a map represent actual objects on the surface of the earth. They are usually drawn so that they appear to be what they represent. For example a building on the surface of the earth is represented by a black square. The legend of the map will contain the necessary information to decipher what the symbols on a map represents. The legend, range scale, and the elevation guide are all along the bottom of the map.

THE SCALE

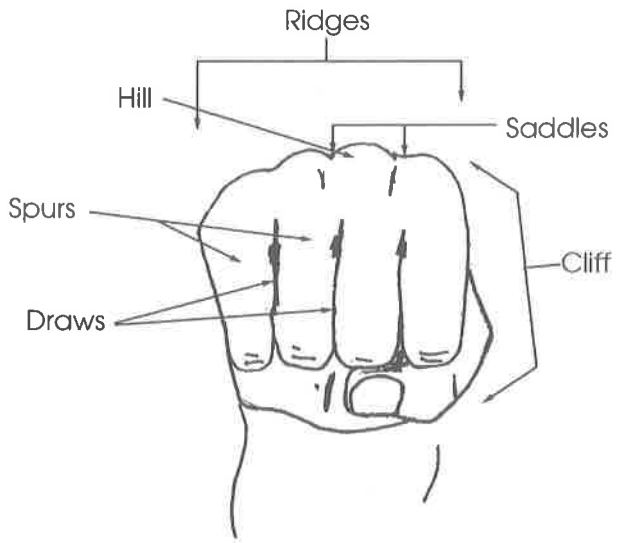
The scale of the map is the relationship between real meters on the surface of the earth and the smaller representation of distance in meters on the map. Scale on a military map comes in one of four different varieties, each of which can be measured with a protractor. The scale on a military map may come in 1 over 25,000, 1 over 50,000, 1 over 100,000, or 1 over 250,000. An example of how to understand the scale is 1 over 25,000 means that one real meter equals 25,000 meters on the map.

At the bottom center of a military map is a usable range scale. It will have bar scales showing distances in meters, yards, miles, and nautical miles. This scale is used to determine how far a map distance is in reality.

TERRAIN FEATURES

Terrain features are map representations of features on the earth's crust. They always appear the same on a map, and are easily identifiable. The five major terrain features are; the hill, the ridge, the valley, the saddle, and the depression. Other terrain features include the cliff, the spur, and the draw.

Using the picture of the fist, one can see what the terrain features might look like in reality. The map pictures show what terrain features look like on a map.



Terrain features explained using a fist

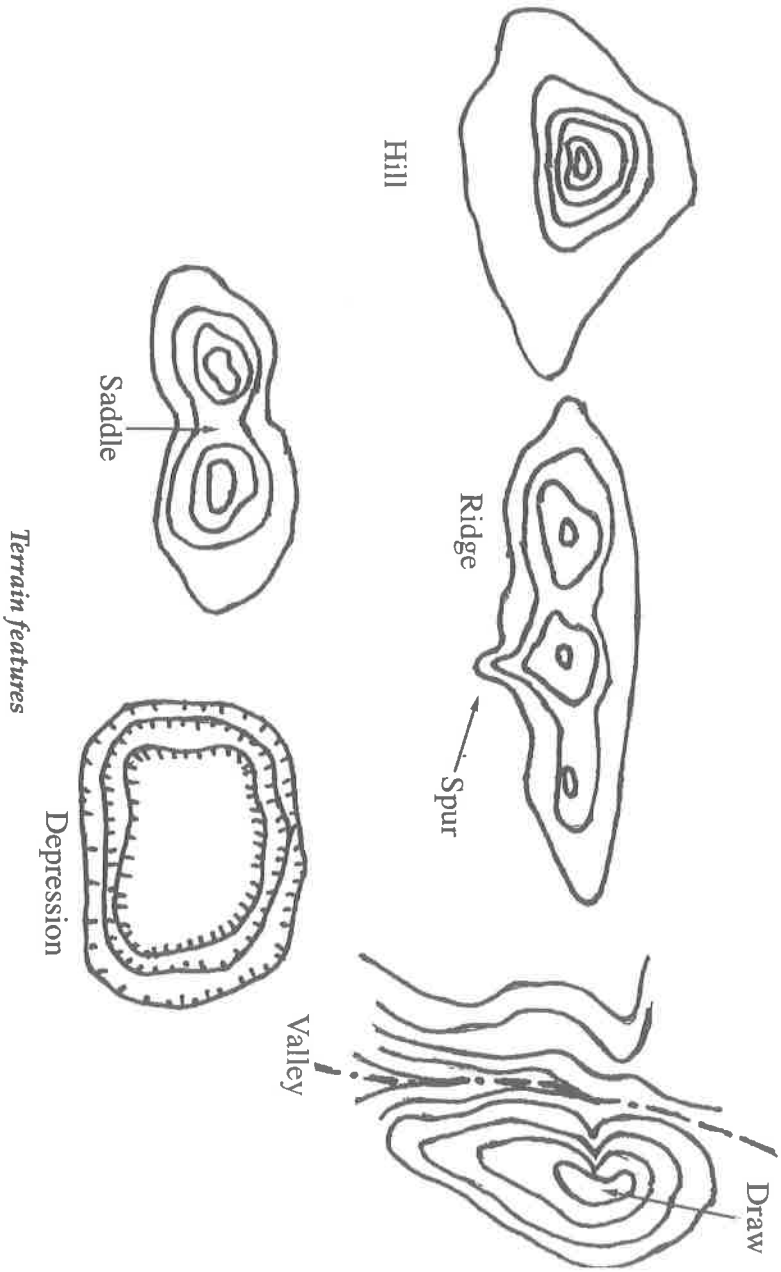
Terrain features are depicted on a map by the placement of contour lines. Contour lines are brown lines that depict changes in elevation all across the map. Contour lines are spaced at regular intervals of elevation to depict the rising and falling elevation of an area. When reading the contour lines on a map, it should be remembered that whenever tick marks appear on them, they are facing away from higher elevation. This is so

that a hill can easily be differentiated from a depression. The following will be descriptions of what each of the terrain features, which are made up of contour lines, looks like when viewed.

1. The hill is a point or small area of high ground. The land around a hilltop slopes down in all direction.
2. A ridge is a linear area of high ground. It may be a series of very close hills that blend into one another. All points along a ridge crest are higher than the ground to either side of it.
3. A valley is a mostly level area of ground bordered on the sides by higher ground. A valley may, or may not, con tain a stream.
4. A saddle is the low point between two adjacent hilltops. It may also be the low point between two peaks on a ridge.
5. A depression is a hole or low point in otherwise level ground. It will be bordered on all sides by higher ground.
6. A draw is like an undeveloped valley. It is a V-shaped feature on a map with the point of the V pointing towards high ground. Draws are often found on the sides of ridges.
7. A spur is a short outcrop of high ground from a ridge. Spurs are often formed in between two draws on the side of an elevated terrain feature.
8. A cliff is a vertical or near vertical slope. On a map it will appear as many parallel contour lines running into one another.

THE MAP COORDINATE SYSTEM

Good navigational maps have grids superimposed over the terrain they feature. These grids are used for navigational purposes. The evenly spaced grid lines can be used to locate points on a map with great accuracy when using a protractor. The grid lines will be closer, or farther apart depending on the scale of the map. To explain this system, the following paragraphs will describe how to use the grid system on a map to locate a point,



Terrain features

both on the map, and on the surface terrain of the earth it represents.

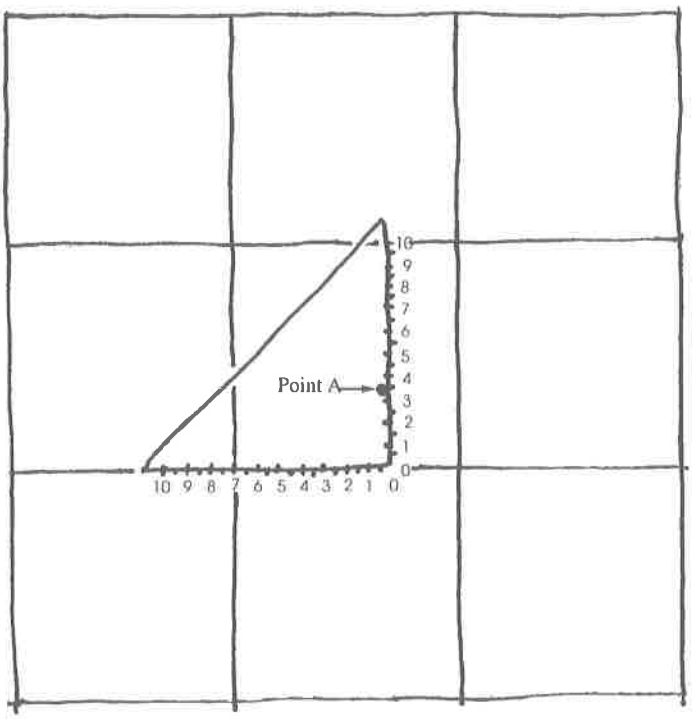
A map has one set of numbered lines that run up and down across it. It has another set of numbered lines that run from right to left across it. These lines make up the grid that is used to find points on the map. The squares that are formed by the intersecting grid lines are called grid squares. Because the grid squares on a map are so large, a protractor's scale is used to find more exact positions within them.

Points on a map are represented by grid coordinates. Grid coordinates are derived by using the numbered grid lines across a map, and the numbered scale of a protractor in conjunction with one another. Grid coordinates are series of numbers. The more numbers in a coordinate, the more exact it is. A four digit grid coordinate is one that makes use only of the numbered lines across the map (each line is represented by a two digit number from 01 to 99, a four digit coordinate has two numbers for across, and two for up). A six digit grid coordinate is more accurate, it uses the numbered grid lines and the numbered scale on a protractor. An eight digit grid coordinate is the most used variety. It uses the numbered grid lines, the numbered scale on the protractor, and two estimated digits. There is one estimated digit for up and one for across that is derived from looking at the point on the map, and seeing where it falls in between the numbers on the protractor's scale (the halfway point equals five, and is marked on the protractor). It is a very simple process.

When grid points are being converted into coordinates, it is important to remember that coordinates are always read right, then up. An eight digit grid coordinate will have the first four numbers standing for a point from left to right. The next four numbers will be for a point from down to up.

Locating a point on a map is as simple as reading any graph. Use the first two numbers in both halves of the coordinate to locate the proper grid square. Then use the proper protractor scale, and the remainder of the numbers to locate the point within the grid square that is being searched for.

MAP SHEET FZ



4 Digit	FZ 1510
6 Digit	FZ 157103
8 Digit	FZ 1570 1034

Scale on protractor use to figure grid coordinates

Maps all make use of the same grid system. When many maps are being used in conjunction with one another, it is important to know on which map a point is being located. Military maps have identification letters on them for this purpose. If not using a military map, it may be necessary to create a system similar to this to keep maps organized. When sending a grid coordinate, send the map identification letters first. An example of an eight digit grid coordinate using map identification letters is GL12345678.

THE TOOLS

Map reading and land navigation use five basic tools. They are the protractor, the compass, the pencil, the map, and the pace. The map has already been explained. The other tools of the trade are equally as important as a map for successful land navigation. The following paragraphs will be a description of these tools.

THE PROTRACTOR

The military protractor is a thin, square, transparent piece of plastic. Civilian versions are available, but the military version is the best, and is cheaply available at any surplus store.

A military protractor has two chief functions. The three triangular scales can be used to locate points on maps of four different scales, as stated above. And, the scale around the edge of the protractor can give an azimuth in mils or degrees from it's center point (which is marked by a cross hair). The protractor can also be used as a straight edge, and in the expedient FDC process explained in Chapter 6.

THE COMPASS

Compasses come in many forms. The military lensatic compass is an excellent choice. It will fill all of the land navigation requirements, and is available at military surplus stores. Because there are so many different types of compasses, it would be ridiculous for me to try to explain how to use each one. Every compass should have directions on how to use it, so read and follow them.

A compass bought for military purposes should have the following attributes: It should have both a mils scale, and a degrees scale. The compass should be easily pointed in a direction, and have its azimuth read at the same time. It should be durable. It should have luminous indicators for night navigation.

The main purpose of a compass is to figure out which direction to travel. When at point A, and wanting to travel to point B, first find both points on a map. Put the crosshairs of a military style protractor down over point A and align them so that they are straight up and down. Now use the direction scale around the outside of the protractor to find out which way in mils or degrees it is to point B. Take out a compass, and find out which way is the correct direction to travel. Begin walking in that direction, using the compass as a guide. To avoid small errors that add up into large errors, pick a landmark off in the distance to walk towards instead of looking at the compass the whole way.

THE PENCIL

A pencil is used to mark points on a map. It is used when planning routes and when doing a resection. A pencil is very handy to have for taking all sorts of notes, and working out all kinds of math problems.

THE PACE

The pace is a way for a walker to measure how far has been traveled across the ground. A person's pace is how many normal sized steps that person takes when traveling one hundred meters. It is different for all people, and must be figured out in advance of any attempts at land navigation.

To figure out your pace, measure out a path that is one hundred meters. Walk along the path at a normal walking speed, from one end to the other. Count each footstep that is taken. The number of footsteps taken to travel one hundred meters is your pace. If the maps being used do not use the metric system, your pace can be figured for one hundred yards.

A pace is used to locate points on the surface of the earth that have been picked off of a map. It is especially useful when there are no landmarks around to use as a reference. To use a pace, measure the map distance from the start point, to the point that is to be traveled to. Use the range bars on the map to find the exact distance. Now get the azimuth (direction) that must be walked along to get to the end point using a protractor. For every one hundred meters between the start point and the end point, a walker will take as many steps as are in his pace.

If a person is looking for something specific, such as a marker, the person should walk in an ever expanding circle around the point where the pace ceases. Using a pace and a compass azimuth will not always get a person to the exact spot that is desired. However, it will get a person very close.

BASIC SKILLS OF LAND NAVIGATION

This is the section that will cover the basic skills of land navigation. Some of the skills such as finding a grid coordinate, using a protractor, and others have already been explained. This section will cover orienting a map, measuring road distances, doing a resection to find your location, and insurmountable obstacles.

ORIENTING A MAP

Orienting a map is a simple process of figuring which way is which on a map. A map is oriented when its north south grid lines coincide with north and south on the earth. It is necessary to orient a map before it can be used. One way to orient a map is to place a compass along one of the north south grid lines of the map with the north on the compass aligned with the north on the map. Then, turn the entire map and compass until the magnetic needle of the compass is also facing north on the map. Another way to orient a map is through terrain association. When using terrain association, just look for some landmarks in the area, and use a compass to determine their directions. Now, find the landmarks on the map and turn the map until they are aligned in the proper directions.

MEASURING ROAD DISTANCES

Road distance is often hard to measure because roads turn and twist. To measure a road distance between two points, get a piece of paper with a straight edge. Place the paper along one side of the road, so that it is parallel to the road until the road turns away. At the point where the side of the road and the paper are no longer perfectly parallel, place a tick mark across the paper and the road on the map. Use this tick mark as a hinge as the paper is turned, until the part of the paper beyond the tick mark is once again parallel with the side of the road. Repeat this process as many times as needed until the road has been followed to its destination. Now find the distance indicated by the tick marks on the paper by comparing them to the range scale at the bottom of the map.

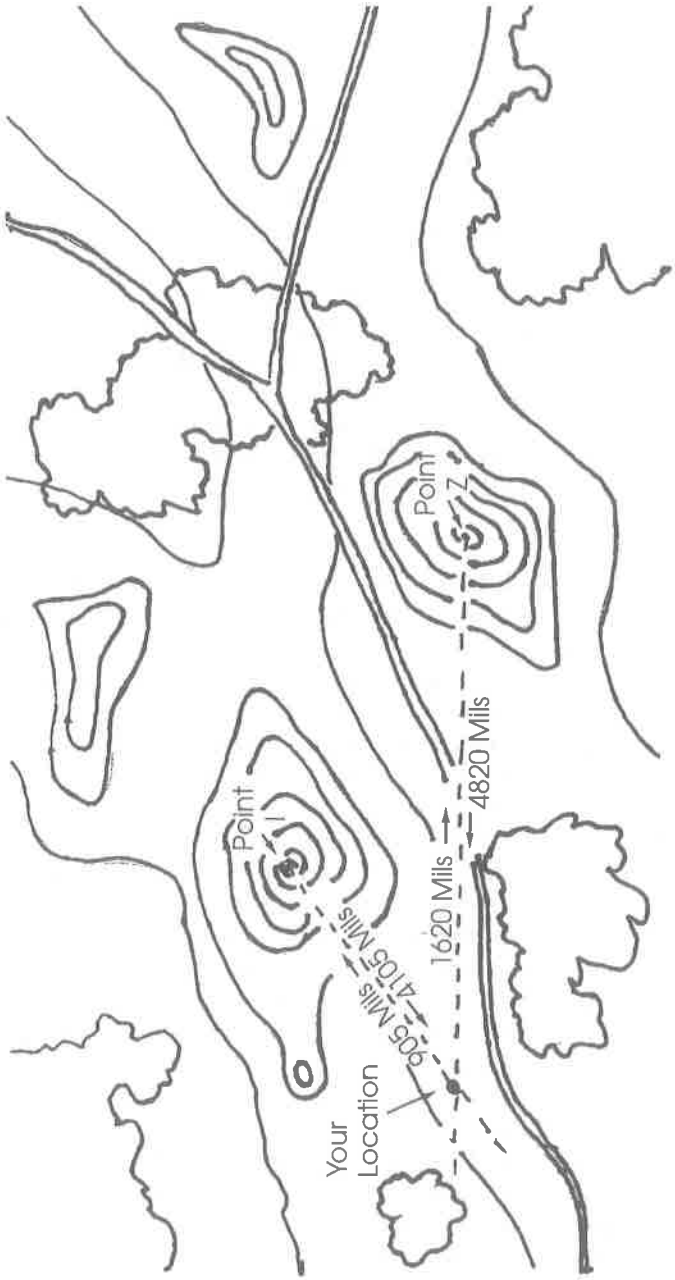
RESECTION

A resection is done to find your exact location on a map. To do a resection a person must have a map, a compass, a pencil, and a protractor.

To execute a resection first locate two distant landmarks on the earth. These landmarks must also be recognizable on the map being used. Examples of good landmarks are hilltops, or buildings. A compass is then used to find the magnetic azimuths to the two different points.

Now figure out the back azimuth of both of these azimuths. The back azimuth is merely the exact reverse direction of the azimuth. In degrees it is figured out by adding or subtracting 180 from the azimuth, whichever gives a number less than 361, but greater than zero is the back azimuth. When using mils, add or subtract 3200, in the same manner. The correct number will be less than 6401, but greater than zero. The back azimuth of 90 degrees is 270 degrees.

Place the crosshairs on a protractor over the first distant landmark chosen on the map. Align it so that the north-south crosshair is parallel to the north-south grid lines on the map. Using the outer scale, locate the back azimuth that was figured for the first landmark. Using a straight edge, draw a line from the protractor's crosshair (which is over the landmark), through

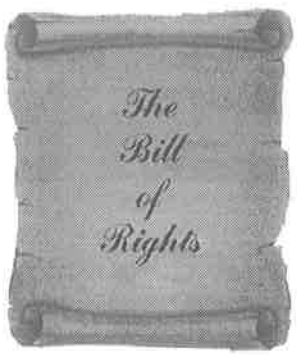

Point 2
Point 1
4820 Mils
1620 Mils
4705 Mils
905 Mils
Your Location

A resection

the back azimuth on the outer scale, and across the map. Now do the same for the other landmark, using its back azimuth. Where the two lines intersect is where you are standing.

INSURMOUNTABLE OBSTACLES

When traveling from one point to another there will often be obstacles that cannot be walked over in the way. Examples of these obstacles are cliffs, ponds, and lakes. There are two ways to deal with these obstacles. The first way is to locate them on a map, and plan a course that goes around them. The second way is to walk right up to the obstacles while following an azimuth, pick a point on the other side of them, then walk around them to that point, and continue following the azimuth.


The
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Chapter 7
Communications and Electronics

Staying in contact with leaders and friendly units during a battle is imperative. Battle situations change from minute to minute. Plans that have been made go sour, while new opportunities for exploiting the enemy present themselves. A force that is unable to adapt and coordinate new plans at a moment's notice will fail on the battlefield.

COMMUNICATION

Communications can take several forms. The most basic form is to use a system of runners. In this system notes are passed manually by people running between different commanders. Orders to attack or move, as well as observations and reports can be passed in this manner. No matter what form of communication is chosen, a force should be prepared to fall back on this type of communication if necessary.

Hand, flag, or sound signals may also be used at shorter ranges. Hand or flag signals may be used in combination with binoculars for line of sight communications. These types of communications require code systems to be created in advance. Sound signals, such as bugles and drums have been used for ages. When using this form of communication, commands are given by generating different sounds or musical selections with a musical instrument. A system of what each command will sound like should be created in advance.

Electronic radio communications are by far the most desirable. When using these types of communications, clear voice commands may be given at a moment's notice without using any type of coded systems. Commanders using radio communications should have several alternate frequencies for use if primary frequencies are jammed. Clear signals of when to change channels should be outlined in advance. Separate frequencies should be used for coordinating the entire attack, and for communications within smaller units conducting their portions of the attack.

TALKING OVER RADIO

Without a format for communications over a radio, messages become confused. It becomes hard to tell when a message ends or begins, whose turn it is to talk, and what exactly is being said. The military has a simple system for talking over radio devices which should be copied to make radio communications more effective.

The first rule when communicating over a radio is to use call signs. Call signs should be used instead of names for security reasons. They keep anyone who is listening in from learning the identities of people communicating. Call signs should be decided on in advance of any actions to be taken. They should be changed between actions.

The second rule has to do with letting the people that are being communicated with know that a message is over. If a message is completely over and requires no further communication, it is followed by the call sign of the person talking then the word "out." If communications are not complete, and the caller is expecting a response a communication is simply followed by the word "over." Following these rules lets the communicators know when they may talk without talking over someone else, and when a message is complete.

The next rule covers how to start a communication. When initiating a communication a caller should first begin with the call sign of the person being contacted. Then they should follow that by identifying who they are. It will sound like this, "Razorback, this is Moose, over." The person being contacted

will then acknowledge the message sender by telling him to send the message. It will sound like this, "This is Razorback, go ahead Moose, over." Following this system lets the communicators know who is trying to contact them.

The fourth rule involves radio courtesy. When assigned to carry a radio, don't talk on it constantly. Unessential radio chit chat is a hazard to a unit that is operating in combat situations. It allows the enemy more opportunities than they normally would have to analyze the content of communications. The enemy will have a better idea of how many units are coming against them, the morale of the units, and any other information that is passed over the air waves. Unessential chit chat also ties up frequencies, delaying more important transmissions.

Another facet of courtesy involves waiting until other messages are over before speaking. If everyone talks at once no one will be understood. Communicators must wait until they hear either "over" or "out" before sending a message.

The concept of the phonetic alphabet is an important concept to understand. Often when talking over a radio, a message will become garbled. When this happens it may be necessary to spell out parts of the message so that it may be understood. A phonetic alphabet is a series of easily understood words that represent letters. Instead of repeating letters over and over that may sound the same, words from the phonetic alphabet are used to represent the letters in a message. Included in a phonetic alphabet are pronunciations of numbers that allow them to be distinguished from one another more easily. The phonetic alphabet included in this chapter does not have to be the one used, but it is an excellent example, and is the one used by the U.S. Army.

STORE BOUGHT COMMUNICATIONS

The easiest way to keep units linked with communications is to buy radio equipment. Buying radio equipment is much more expensive than building it, but the equipment will likely be of much better quality. I recommend purchasing equipment whenever it is fiscally prudent.

THE PHONETIC ALPHABET

A	N	1
ALFA	NOVEMBER	WUN
(AL FAH)	(NO VEM BER)	
B	O	2
BRAVO	OSCAR	TOO
(BRAH VOH)	(OSS CAH)	
C	P	3
CHARLIE	PAPA	TREE
(CHAR LEE)	(PAH PAH)	
D	Q	4
DELTA	QUEBEC	FOW ER
(DELL TAH)	(KEH BEK)	
E	R	5
ECHO	ROMEO	FIFE
(ECK OH)	(ROW ME OH)	
F	S	6
FOXTROT	SIERRA	SIX
(FOKS TROT)	(SEE AIR RAH)	
G	T	7
GOLF	TANGO	SEV EN
(GOLF)	(TANG GO)	
H	U	8
HOTEL	UNIFORM	AIT
(HOH TELL)	(YOU NEE FORM)	
I	V	9
INDIA	VICTOR	NIN ER
(IN DEE AH)	(VIK TAH)	
J	W	0
JULIETT	WHISKEY	ZE RO
(JEW LEE ETT)	(WISS KEY)	
K	X	
KILO	XRAY	
(KEY LOH)	(ECKS RAY)	
L	Y	
LIMA	YANKEE	
(LEE MAH)	(YANG KEY)	
M	Z	
MIKE	ZULU	
(MIKE)	(ZOO LOO)	

Ensure that all equipment bought can transmit as well as receive. If this is not possible it may be necessary to keep a second radio on hand that can perform the lacking function. This will especially be a problem when using homemade transmitters.

Some types of hand held HAM radios are only usable in conjunction with a base station. Be careful to check that the item bought can transmit on frequencies that it (or others like it) will be able to listen to.

Many radios require licenses to operate. In fact they cannot even be purchased without one. HAM radios are among these types. If these types of radios are somehow "acquired" don't use them until the day they are needed. The FCC has the ability to detect and track down these signals. They will find the radios if they want to.

When purchasing a hand held radio, there are three main types to consider. There are CB (citizen's band) radios, walkie talkie radios, and HAM radios. Any of these will provide a decent communication link for units at short ranges. Ensure the radio model that is decided on has multichannel capabilities, and a decent range.

CITIZEN'S BAND RADIOS

The hand held CB radios will be of the poorest quality. CB radios are usually designed to fit permanently into cars. The hand held ones are designed for people who are worried that they may end up stranded, but don't want to pay for a real CB. They have decent multichannel capability, but hand held CB radios have an average range of about one hundred meters. They are included in this section as a viable type of communication because there may be a good, long range, hand held CB radio out there. I just haven't seen it yet.

Vehicle, and base station CB radios have excellent range. On some nights, and with the proper equipment a person in a different state can be communicated with. The problem with relying on these types of radios is that its user must remain in a vehicle or at a home.

WALKIE TALKIE RADIOS

The walkie talkie type radios have a superior range to the CB radios. Unfortunately most have only one channel capability. Some do exist with four or more preset channels, but they are more expensive. Be careful not to buy children's toy walkie talkies. A child's walkie talkie has less range than a conversational voice.

The walkie talkie type radios are available at any Radio Shack or other electronic stores.

HAM RADIOS

The HAM radios are the best because they have the longest ranges. Using a handheld HAM radio, a transmission can be heard for miles. People on different sides of a good sized city are able to communicate with one another. Many handheld HAM radios are also capable of storing frequencies that can be later retrieved at the touch of a button.

SCANNERS

Other store bought electronic devices that may be of some use are scanners. Scanners have the capability to monitor all forms of communications that are used by the government. If a person is worried that the government may raid them, a scanner may give them the tip off they need to beat feet, or prepare a defense. David Koresh reportedly had a set of scanners, and used them to get the final word that he was going to be raided. Scanners can also monitor cellular phone calls and other forms of private communication between 25 and 1300 MHZ.

A very good scanner is going to cost between three hundred fifty and five hundred dollars. Ensure that a continuous band scanner is purchased, as the others have gaps in their frequency coverage where the most interesting communications take place. Try to get a scanner that will scan frequencies on it's own until a communication is detected. Manually tuning for frequencies is a pain in the butt.

HOMEMADE ELECTRONICS

Communications do not have to be store bought to be good. With a little know-how in electronics, and the right tools, and parts, anyone can make their own transmitters and receivers. A simple transmitter can be used in conjunction with a store bought receiver to become the most cost effective solution to any communications needs. To create electronic transmitters a few requirements must be met. The following paragraphs will be a list of how to create transmitters and receivers.

Originally, I had included some designs for transmitters that would broadcast on FM frequencies compatible with store bought receivers. Concerns over plagiarism has forced me to leave them out. I will, however, make a list of the library books I researched to find these transmitters so that you may make your own copies of the circuits (see bibliography).

When deciding to build a transmitter the first thing that is needed is a little electronics know-how. Before skipping ahead to the Spartan explanations given later in this chapter, consideration should be given to buying a book on the subject for beginners. The discourse on electronics in this book will cover how to identify components in schematics, and the real world, as well as how to hook them up correctly. This book will give the very basics on electronics so that anyone will be able to construct a working device from a schematic. It will not cover what the components in the schematic actually do. An excellent book for beginners can be obtained at Radio Shack. It is called *Getting Started In Electronics* by Forrest M. Mims III, and costs less than three dollars.

The proper tools go right along with the proper knowledge. To get started, get a soldering iron, wire cutters, wire strippers, screw drivers (phillips and regular), solder, pliers, and a heatsink (used to draw heat away from components during soldering). If this is going to become a hobby, get a multimeter to test and make electronic measurements on components (they are available cheaply as kits, and they all come with instructions). Radio Shack sells all of the above tools in a single package (excluding the multimeter), as well as many other tools that may be needed.

The next thing that is needed is a set of schematics to work from. Schematics are the paper diagram representations of the circuits that are to be built. They can be obtained from the electronics section of any library. Two books that contain excellent schematics for FM transmitters that can be detected with store bought receivers are *Build Your Own Laser, Phaser, Ion Ray Gun, And Other Working Space Age Projects,* and *49 More Easy To Build Electronics Projects.* The former has its transmitter project available as a kit.

Now the proper parts are required. This is going to be the tough part. Components are hard to buy in small quantities, and few stores sell exactly what is needed. Radio Shack has a shamefully small collection of components to choose from, and is indicative of most hobby stores. Nothing is more frustrating than not being able to get parts for a project that is begging to be built.

It is a good idea to cannibalize defunct radios and televisions for parts, but they will seldom yield exactly what is being sought. When taking apart old equipment use a copy of the Archer *Semiconductor Reference Guide* from Radio Shack to identify components. Most parts are easily identifiable, but transistors, and integrated circuits (chips) aren't. In most cases they are numbered for easy identification in the afore mentioned reference manual.

There are two good solutions for the problem of parts. The first is to build the equipment needed out of kits. The second is to send away for as many electronic component catalogs as possible so that parts can be ordered. To take advantage of both of these solutions, go to the nearest magazine stand and acquire a copy of *Electronics Now, Popular Electronics,* or any other electronics hobby magazine. Inside these magazines will be ads from all sorts of manufacturers. Most will send catalogs of kits or components free of charge, few will ask for more than a dollar. Send away for every catalog that is advertised pertaining to components or kits. One of them will have what is needed.

Kits are the best bet. They will contain all the parts needed to build a project, and the instructions to build it as well. These kits are not going to be the rinky-dink little twenty-in-one sets

that are popular Christmas gifts for eight-year-olds. They will be for everything from night vision and stun guns, to telephone tapping devices and bugs. There are kits to build radio jammers, laser sights, and just about any other devious device that can be imagined. It is worth getting a catalog just to see what is available, because if it can be bought, the government already has a better model of it. One especially good company is called Information Unlimited. Their catalog is available by sending one dollar (as of the writing of this book) to Information Unlimited, Box 716, Amherst, NH 03031. Another good company is Pan-Com International, PO Box 130, Paradise, CA 95967-0130. Pan-Com's catalog also costs one dollar.

BASIC ELECTRONICS

This section is an explanation of how to put together a working device from a schematic drawing. There are two parts to this section. The first is assembly techniques, and the second is identification of components.

CONSTRUCTION TECHNIQUES

Soldering is a basic skill that needs to be understood to construct any electronic devices. Soldering is when solder is applied to hold two contacts together. It is done by melting the solder over the contacts. It is a simple process, but a few basic rules can be followed to make it more successful. The first rule is to use rosin core solder to avoid corrosion of solder leads. Second, use a low wattage soldering iron (15 to 40 watts) because excessive heat can damage components. Third, tin the tip of the iron as per the instructions given with it. Fourth, remove the insulation from the wire or component sections to be soldered. Fifth, to solder, first heat the connection to be soldered, not the solder. After a second or two, apply the solder to the surface of the connection to melt it. Keep the iron in place until the solder flows all around the connection to insure a good weld. Fifth, do not use too much solder. Sixth, do not allow the connection to move until the solder cools. Seventh, always use a heatsink. A heatsink draws the heat away from the

components that are being soldered. Finally, keep the tip of the iron clean by wiping it with a damp cloth or sponge.

When building a circuit, connections between components should be as short as possible. This rule should be followed especially close when putting together high-speed digital circuits and high-frequency analog circuits.

Physical isolation of the input and output sections of high gain amplifiers is required. If not, inductance may cause a portion of the output signal to be fed back through the input. This will cause some annoying oscillation.

Use insulated wire when constructing a circuit. Insulation will add to the life of the circuit, as well as help to avoid inductance or short circuiting. This is especially important when dealing with household level voltages.

A chassis ground is different from a normal ground. A chassis ground is hooking the end of the wire with the ground symbol on it to the case of the device. When a schematic has many chassis grounds, it is the same as hooking them all up to one another. A regular ground is hooking the wire with the ground symbol on it to a pole stuck in the earth, or something similar.

Don't worry if some of the terminology in this section is baffling. If working from a schematic diagram, most of the problems of circuit layout will be solved for you.

COMPONENT IDENTIFICATION AND TIPS

Being able to identify what components look like on a schematic diagram is a critical skill. This section is to act as a reference. Since this is not an electronics handbook, a description of how these components function will not be given. It is only necessary to have the proper component hooked up in the proper way to successfully build a working device from a schematic. The following part of this section will contain any other information having to do with component identification.

Resistors have a special color coding system that is used to reveal their resistance rating in OHMs. It is important to understand the system in order to ensure that the proper resistor is used in a circuit. A resistor will have three color bands around it. They will be a combination of the following colors given with

the values that they stand for; black=0 and 1, brown=1 and 10, red=2 and 100, orange=3 and 1,000, yellow=4 and 10,000, green=5 and 100,000, blue=6 and 1,000,000, violet=7 and 10,000,000, gray=8 and 100,000,000, and white=9 and nothing else. The first number in the above values is used when rating either the first or second band. The second number is the multiplier number and is used when looking at the third band. To read a resistors rating in OHMs, read what the numbers would be for the first two bands, then multiply that number by the third band.

An example of this system is a resistor with the color bands of green, blue, orange. Green=5 when the first band, blue=6 when the second band, and orange=1,000 when the third band. The resistance in OHMs for this resistor is 56 x 1,000 or 56000.

Sometimes a resistor will have a fourth band. This band indicates the accuracy of the bands that denote its resistance. The accuracy band will be one of the following colors with value that it represents plus or minus the indicated value of the resistor. Gold indicates 5%, silver indicates 10%, and no band equals 20%.

Capacitors store electrons like batteries. Some can store ungodly amounts of energy within them. When taking apart electronic devices for parts be careful not to touch both leads of a capacitor at the same time (especially when taking apart a television set). If both leads are touched at the same time the capacitor may discharge into you. Unlike a battery, a capacitor releases it s charge all at once. To avoid being shocked, short out capacitors using an insulated screwdriver before handling them.

Most components are polarized in one way or another. This means that they have an end that must be hooked to positive and one that must be hooked to negative. Components are usually clearly marked when this is the case. If unsure, refer to the package that the component came in. Diodes are marked with a band at their negative end. Capacitors will usually have their negative end marked in a similar fashion.

Transistors usually have three leads. Each of these leads must be hooked up to the part of the circuit they are designated for.

The three leads are the base, the emitter, and the collector. They will be identifiable from the packaging that comes with the transistor.

Integrated circuits are nothing more than groups of components that have been shrunk and placed together on a single platform. Usually integrated circuits are packaged in this way because the components on them form a commonly used circuit, such as an amplifier. Often when a circuit calls for an integrated circuit, many of the leads are not even hooked up. This is because the circuit is only making use of certain parts of the integrated circuit such as a few diodes, logic gates, capacitors, etc.

ELECTRONICS AND THE GOVERNMENT

One thing that can always be counted on is that if the government is capable of doing something, it will do it. It does not matter how many checks and balances have to be sidestepped, or rights and freedoms trampled, the government does what it wants. The fact that there are so many cases that go before the supreme court (supreme kangaroo court) on police procedure shows that someone must be violating it. In fact, I know an ex-police officer that used to carry blank search warrants, that had already been signed by a judge, for use whenever the need arose. Yes, our rights look really good on paper– it is too bad they don't exist anywhere else.

The point to this section is that the government wages all-out war on suspicious characters. It will use whatever it has at its disposal to get the goods on anyone. This includes the use of illegal wiretapping, bugging, and other forms of electronic monitoring.

The idea that the government is using bugs to monitor people, myself included, is pretty horrific. The best way to deal with the paranoia that comes with wondering whether a bug is present is to know a little bit about electronic monitoring.

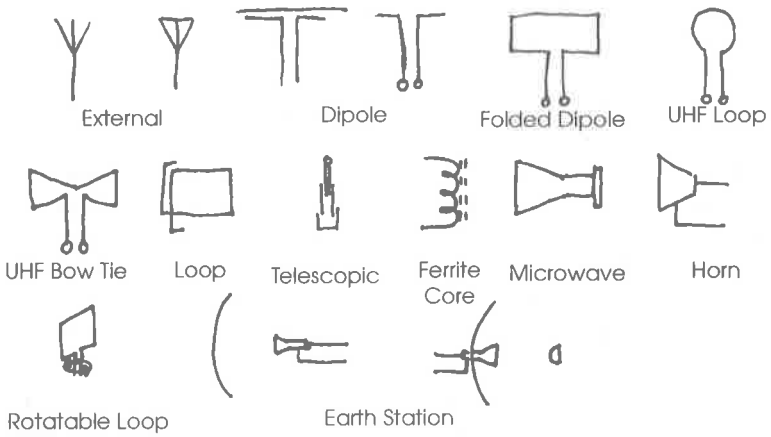
First, it is most likely that a bug will be transmitting in the upper FM bands on normal radios. This is about 90mhz to 110mhz. This means that a bug can be heard by anyone within transmitting distance using a normal radio receiver, including

the person being bugged. So using a normal receiver, tuning up and down the dial, while walking around a room and talking, you should be able to detect a bug. As the radio is brought closer to the bug, and kept on the bug's frequency, it will begin to hum and oscillate in an increasing manner.

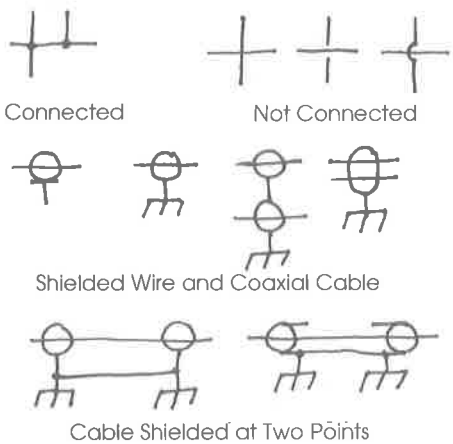
Second, a bug may be hooked to a line. What is meant by this is that any electrical communications line that comes into a house has the potential of being tapped. The government has something called an infinity transmitter which they can use to call your house, turn off your ringer, and then use your own phone receiver to listen to your conversations while it is still on the hook. With technology like that, I would not be surprised if they could monitor people through a cable box. There are devices that can detect taps on a phone line by detecting a change in the current traveling through it. Some are sold as kits out of electronics magazines.

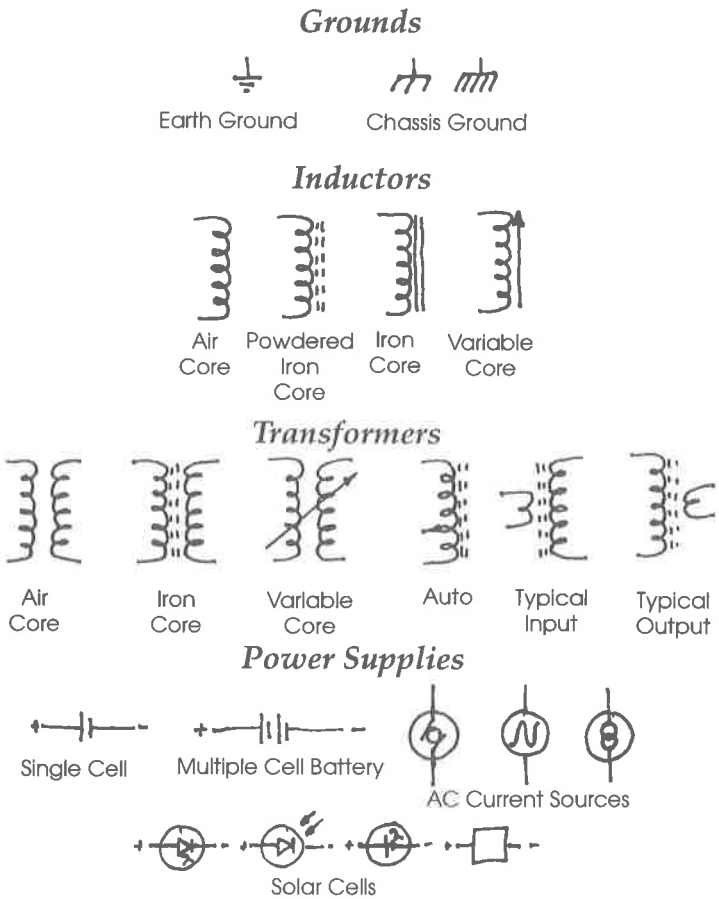
Third, if there is one bug in the house, there are going to be more. I've read that a professional bugger will leave up to three bugs in an area to be bugged. I would not be surprised if they left fifty. If you have found a bug in your home, just assume that the government knows how many pieces of corn are in one of your average turds. You can either try to remove all the bugs, play loud music next to them, jam them with a kit jammer, give the government some disinformation, or report it to a lawyer.

Antennas



Wire

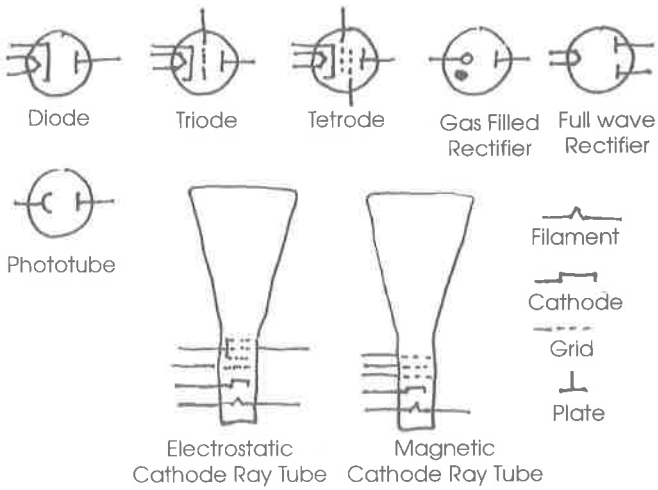



Grounds
Earth Ground
Chassis Ground
Inductors
Air Core
Powdered Iron Core
Iron Core
Variable Core
Transformers
Air Core
Iron Core
Variable Core
Auto
Typical Input
Typical Output
Power Supplies
Single Cell
Multiple Cell Battery
AC Current Sources
Solar Cells

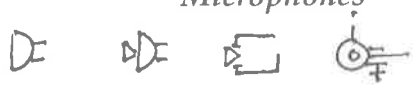
Fuses

Shielding

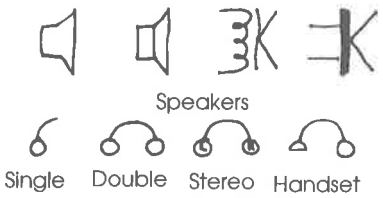
Electron Tubes



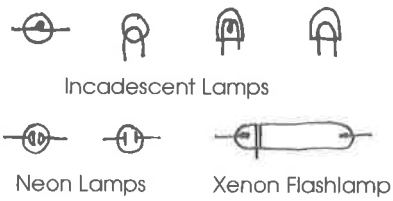
Microphones



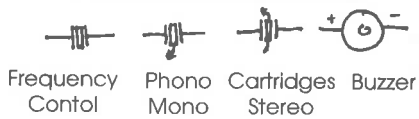
Speakers and Headsets



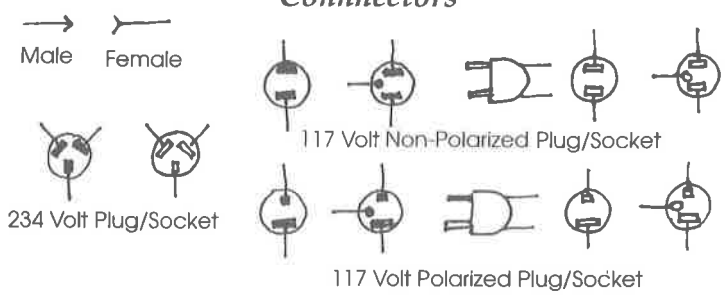
Lamps



Piezoelectric Devices



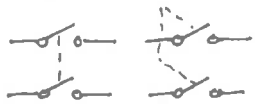
Connnectors



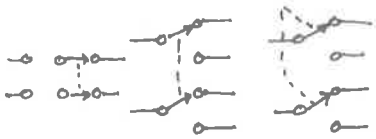
Switches

Single Pole Single Throw Switch

Single Pole Double Throw Switch



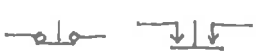
Double Pole Single Throw Stitches



Double Pole Double Throw Stitches

Rotary

Nomally Open
SPST Push Button



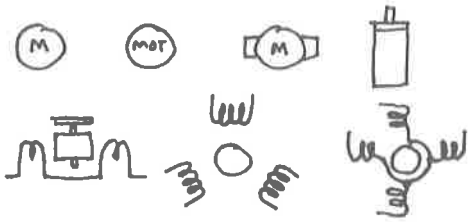
Nomally Closed
SPST Push Button

SPDT Push Button

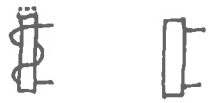
DPTT Push Button

Relays

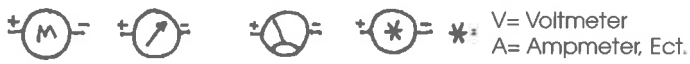
Motors



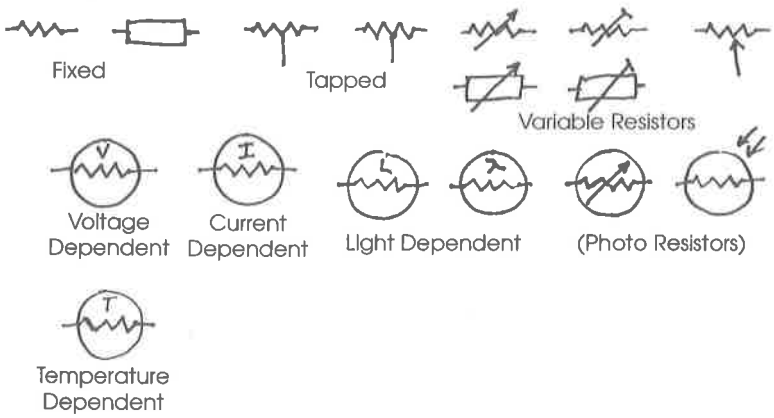
Solenoids



Meters



Resistors



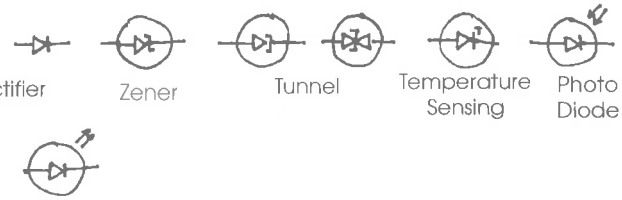
Capacitors

Fixed Capacitors (Non-Polarized)

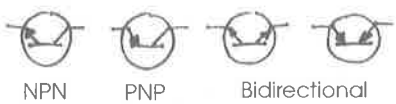
Fixed Capacitors (Polarized)

Variable Capacitors

Diodes



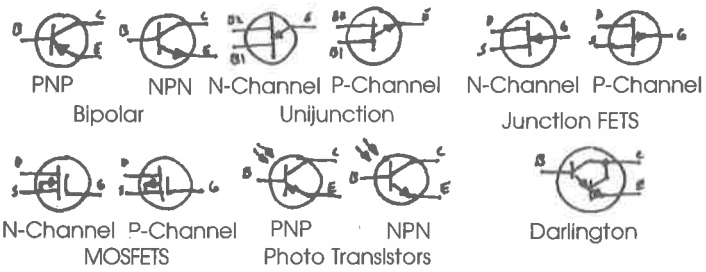
Diacs 3-Layer Switches



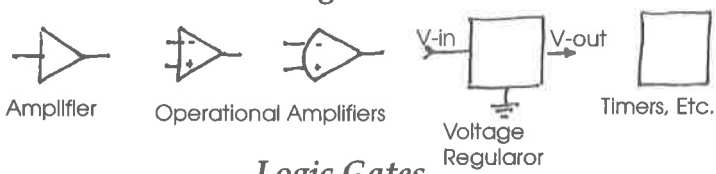
4-Layer Switches

Thyristors (SCRs)

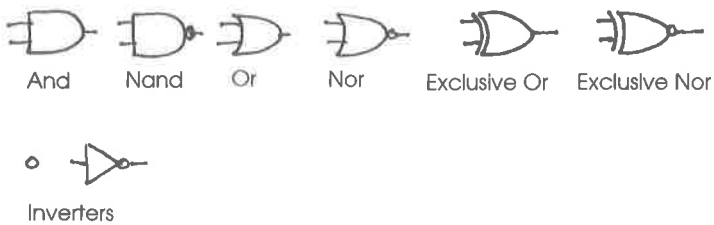
Transistors



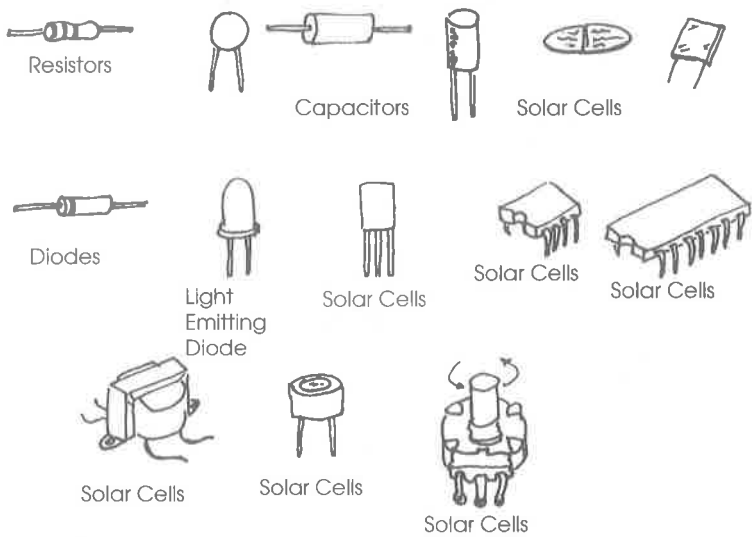
Analog Circuits



Logic Gates



Device Packages



ELECTRONIC ABBREVIATIONS

A=	AMPERE	R=	RESISTANCE
F=	FARAD	V=	VOLT
I=	CURRENT	W=	WATT
P=	POWER	Ω=	OHM

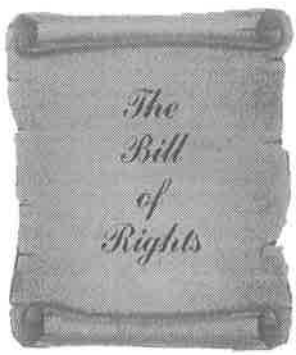
M (MEG-)=	X 1,000,000
K (KILO-)=	X 1,000
m (MILLI-)=	.001
μ (MICRO-)=	.000001
P (PICO-)=	.000000001
n (NANO-)=	.000000000001

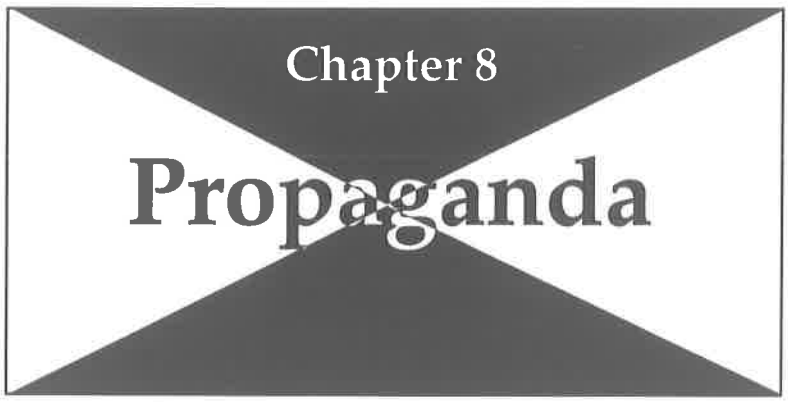
OHM'S LAW

V=IR I=V/R R=V/I P=VI

RESISTOR COLOR CODE

COLOR	VALUE AT FIRST BAND	VALUE AT SECOND BAND	THIRD BAND
BLACK	0	0	X 1
BROWN	1	1	X 10
RED	2	2	X 100
ORANGE	3	3	X 1,000
YELLOW	4	4	X 10,000
GREEN	5	5	X 100,000
BLUE	6	6	X 1,000,000
VIOLET	7	7	X 10,000,000
GRAY	8	8	X 100,000,000
WHITE	9	9	NONE


The
Bill
of
Rights



Propaganda is nothing more than persuasion. In recent times it has gained a bad reputation. The fact is, we are all bombarded by propaganda every day. Any information that attempts to persuade us to buy or do something, or feel a certain way is propaganda.

An underground (or above ground) military organization can make good use of propaganda. There are three major target areas for propaganda that an organization should attempt to persuade. The target areas are: the members of the organization, the enemy, and the public at large. Each of these target areas requires a slightly different sort of propaganda, because each group needs to be persuaded to do different things.

The members of the organization need to be convinced that they are doing the right thing. The people putting out the propaganda need to convince the members of the organization that the cause is not only bigger than each individual, but that it is bigger than the entire organization. Through the organization, members should believe they are working for a cause that will benefit the people they care about, and that they will be rewarded after the cause is won. Members need to be convinced of this even if the people they are trying to help disapprove of the organization's actions.

Members of an organization must also be persuaded to prepare, and train. They must be given honest information concerning the enemy, and the missions they will be asked to undertake.

Even a battle manual, such as this one, is a form of propaganda. True information about the enemy will persuade organization members to prepare to meet the challenge that is facing them. Don't give members bogus information about weakling, or ridiculous enemy forces, because they will find out the truth once they join in battle with the enemy. Not only will the organization be at a disadvantage, in this case because it is unprepared, but the leaders will look as though they do not know what is going on. Tell the organization members the truth and work from there.

The enemy needs to be undermined by propaganda. Using as much truth as can be proved (whether it is true or not) the propaganda directed at the enemy should leave them confused, and untrusting of their leaders and other members. Morale needs to be undermined. The enemy soldiers should be made sympathetic to your cause, and unbelieving in their own cause. The will of the enemy to fight must be taken away. The easiest battles to win are those where the enemy shows up without the will to fight, or is too demoralized to show up at all.

Accomplishing these goals is a matter of imagination. Here are a few ideas: Digging up dirt on the enemy's leaders works well to undermine troop confidence. Playing up a few enemy losses will work well to degrade an enemy army's will to fight. Showing the enemy that its cause is unpopular or unjust will influence its members to leave.

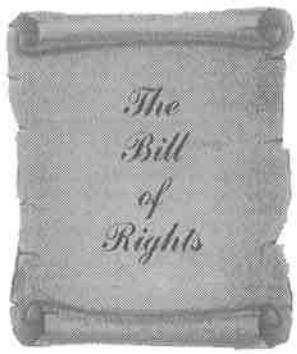
The general population must be conditioned so that it will be sympathetic to the cause of your organization. The public is an organization's source of manpower, and in many cases supplies. The public needs to be convinced that aiding the organization is not only going to benefit them, but that it is a moral imperative. Without public approval, it is next to impossible to hold a populated area.

Propaganda is wide open field. There are many strategies to accomplish each target area's goal. There are many ways to disseminate the information that an organization uses for persuasion purposes.

Printed leaflets, dropped on city streets from cars, are one way to get propaganda out. Mobile pirate radio stations are

another way to send information. Even starting a rumor will work (we've all heard about Mikey's stomach exploding after mixing Coke and fizz candy).

This section on propaganda is an outline of the targets and goals of propaganda. Using this information, a propaganda campaign can be devised for any situation. Do not use strategies that do not work. Whatever works best is what should be used.


The
Bill
of
Rights

Chapter 9
Improvised Weapons

The point of this chapter is that a civilian military force may be reduced to fighting with whatever it can find or make. A true warrior will happily attack a tank with a log, if there is some chance of stopping it. This chapter is about easy-to-manufacture weapons and explosives that will give the log wielding warrior a better choice of armament, and a fighting chance.

For this chapter, I went through all of the bomb recipes, and weapon plans that I could find. I threw out everything that required any special equipment, talents, or ingredients to make. What I ended up with were a lot of good, easy to make bomb recipes, and weapon systems (mostly bomb recipes). They all use easily acquired ingredients, and parts, as well as a minimum of effort.

The first part of this chapter is about how to acquire the various ingredients used in the chemical recipes. The second part is instructions about mixing the ingredients to make the different explosives. The third part of this chapter covers blasting caps, and weapons systems. Further information on explosives is contained in chapter three.

FINDING CHEMICAL INGREDIENTS

Most of the chemicals needed to make the explosives in this chapter can be bought at a store. In this section is a list of chemical ingredients for the explosive recipes in this chapter. The

Chemical	Data
Aluminum	cans
Aluminum bronzing powder	paint stores
Ammonium hydroxide	ammonia, smelling salts
Ammonium nitrate	fertilizer with 32% or more nitrogen sufficient for fertilizer bombs, available at feed stores
Carbon tetrachloride	fire extinguishers
Calcium carbide	acetylene or calcium carbide lamps
Carbon tetrachloride	cleaning fluid
Citric acid	sour salt at drug or food stores
Copper sulfate	insecticide at hardware stores, water purifier
Ferric oxide	iron rust
Hexamethylenetetramine	drug stores under; urotropine, hexamin, methenamine or Army heat tablets
Hydrogen peroxide	6% hair bleach or stronger
Lead metal	plumbing supply store
Lead acetate	sugar of lead
Lead monoxide (litharge)	at plumbing supply store
Magnesium sulfate	epsom salts
Methanol (wood alcohol)	paint removers, some antifreezes
Methyl alcohol	non-dentured wood alcohol, non- permanent antifreeze
Mercury	thermometers, mercury switches
Mononitrobenzene	oil of mirbane at drug stores, used as a solvent in industry
Naphthalene	moth balls

Chemical	Data
Nitric acid	used in industrial metal processing
Paraffin wax	electronics stores
Petroleum jelly	vaseline
Potassium chlorate	sometimes used as a medicine, used in the manufacture of matches
Potassium nitrate	saltpeter at drugstores
Silver	coins
Sodium chlorate	weed killer at hardware stores, medicine
Sodium chloride	salt
Sodium hydroxide	lye
Sodium sulfate	Glauber's salt
Sodium thiosulfate	photographer's hypo
Sulfuric acid	car battery, can be boiled until white fumes appear to make concentrated. Liquid Fire drain cleaner
Tetrachloroethylene	dry cleaners, pharmacy

chemicals are listed, along with any pertinent data that will make them easier to find. Data may include the more common names that the chemicals may be marketed under when sold as products, specialty stores where the chemicals can be found, or anything else that may help in finding them.

Check the ingredient lists on the products used when using them instead of pure chemicals from a chemical supplier. Ensure that the proper chemical is present, and that it makes up almost all of the product. Many of the products can be found at hardware or drug stores.

MIXING CHEMICALS

This section is a collection of tips for making the chemicals, and explosives recipes in this chapter. Some of these chemicals are highly caustic and hazardous to work with. Take extreme caution when working with them.

Whenever amounts are listed, a part is one unit of weight. If a recipe calls for one part dirt, and two parts water, it means that for every one gram of dirt, two grams of water must be added. A part could be any unit of weight. It could be kilograms, pounds or grams. A part is not a unit of volume, unless, it specifically says to use so many parts by volume in the recipe. Other recipes will give exact amounts in tablespoons or other known units of measurement.

All explosives and chemicals made should be stored in air tight jars, or containers. Many of them will soak up moisture from the air and become degraded or useless.

Never breathe the fumes given off by any of these chemicals. Whether the chemicals are alone, or in the midst of a reaction, many are harmful. Some of these chemicals will also burn away clothing, flesh, and even metal. Be especially careful around the nitric and sulfuric acids.

The primary explosives are very sensitive to both shock and heat. Handle them carefully. Some of them become dangerous before the process of making them is complete. Use great care.

The secondary explosives should be encased in a metal enclosure, such as a pipe, to ensure they explode and don't just fizz. A blasting cap, or some other detonating device should be

placed in the container with the explosive. Leads, a wick, or det cord should be attached to the blasting cap to get it to go off. Most of the secondary explosives will absolutely require that a primary explosive (blasting cap) be used to set them off.

MAKING CHEMICAL INGREDIENTS

COPPER SULFATE

Materials

1. Small pieces of copper
2. Diluted sulfuric acid (straight battery acid)
3. Potassium nitrate
3. Alcohol
4. Two one pint heat resistant containers (jars)
5. Paper towels
6. A pan
7. A wooden stick
8. A cup
9. A container
10. A heat source
11. A teaspoon

Mix one cup of diluted sulfuric acid with ten grams of small copper pieces in one of the pint jars. Add twelve grams of potassium nitrate to the mixture.

Fill the pan with water, and bring it to a boil over the heat source. Place the pint jar with the mixture in it, upright, into the pan of boiling water. Heat the mixture in the boiling water until the mixture stops bubbling. This will take about two hours, at the end of which the mixture will have turned blue. The fumes released during this procedure are highly toxic. Make sure a well ventilated area is used.

Pour the blue mixture into the other pint jar, leaving the leftover copper pieces in the first jar. The leftover copper pieces may be thrown away. Allow the solution to cool.

After solution has cooled, crystals will have formed in the bottom. Pour the solution away from the crystals, leaving them in the jar. Crush the crystals into a fine powder with the stick.

The crystals must be washed three times. To wash them pour one half of a cup of alcohol into the jar with them while stirring. Tape paper towels over the opening of the yet unused container. Filter the solution through the paper towels, collecting the crystals off of the paper towels each time.

LITHARGE (LEAD MONOXIDE)

Materials

1. Lead metal in small pieces
2. Potassium nitrate or sodium nitrate
3. Methyl alcohol (wood alcohol)
4. An iron pipe with one end capped
5. A screwdriver
6. Paper towels
7. Two glass jars
8. A metal can
9. A very hot heat source (blow torch, hot coals)
10. A cup
11. A pan

Mix four grams of the potassium nitrate or sodium nitrate in the pipe with twelve grams of lead. Heat the iron pipe with the mixture in it, using the heat source, for between thirty minutes and an hour. It will turn yellow. Allow the pipe to cool after it has been heated. Chip the mixture out using the screwdriver and put it into a jar.

Fill the pan with water and heat it until it boils. Add one half of a cup of alcohol to the chips in the jar. Place the jar containing the chips and alcohol, upright, into the hot water. Heat it until the alcohol and the chips react. This reaction should take about two minutes, and will be marked by the solution becoming darker.

Tape some paper towels over the opening of the other jar. Filter the mixture through the paper towels. The material left on the paper towels is the lead monoxide.

The lead monoxide should be washed twice before using it. To wash it, mix the lead monoxide with one half cup of hot water. Then filter the mixture through paper towels as before.

Allow the crystals to air dry after the final washing so that they may be used.

To reclaim the potassium nitrate or sodium nitrate used, save the dark liquid that was first poured through the paper towels. Put it into a jar, and place the jar into the pan of boiling water. Leave the jar in the pan until the alcohol has evaporated. What is left is the potassium or sodium nitrate.

NITRIC ACID

Materials

1. Potassium nitrate (two parts by volume)
2. Concentrated sulfuric acid (one part by volume)
3. Two narrow necked bottles
4. A frying pan
5. A heat source
6. Tape, any kind but masking
7. Paper or rags

The amount of nitric acid created will be equal to the amount of potassium nitrate used.

Mix two parts potassium nitrate with one part sulfuric acid in one of the bottles until a paste is formed. Make sure that the bottle is less than one quarter full.

Wrap the rags or paper around the necks of the bottles, and tape the two bottles tightly together, opening to opening. Make sure they are flush together, and that there are no air spaces. Turn the two bottles sideways, keeping all of the mixture in one bottle. Set the bottles so that the empty one is slightly below the filled one.

Build a fire in the frying pan, and hold it under the rear of the filled bottle. Heat the mixture by moving the flames in and out from beneath the rear of the bottle. As red fumes begin to appear, pour cold water over the empty bottle (be careful not to inhale them). Continue to do this until fumes no longer appear. What condenses in the empty bottle is nitric acid. If it is not clear, repeat the process using the condensed fumes instead of the potassium nitrate and sulfuric acid mixture.

POTASSIUM NITRATE

Materials

1. High nitrogen fertilizer
2. Fine, white wood ashes
3. A large bucket with many pencil size holes in the bottom
4. A sheet, or similar cloth
5. A pan that is wider than the bottom of the bucket
6. A heat resistant pot
7. Two gallons of water
8. One gallon of alcohol (whiskey, or rubbing alcohol will do)
9. A heat source
10. Paper
11. Tape

Tear off a piece of the cloth big enough to cover the bottom of the bucket. Line the bottom of the bucket with the piece of cloth. Fill the bucket about one quarter full with the ashes. Place another piece of the cloth over the ashes, covering them completely. Fill the bucket the rest of the way up with the fertilizer.

Put two sticks across the top of the wide pan. Place the bucket on top of the two sticks so that it is now supported over the wide pan.

Pour the water into the third, heat resistant pot. Heat the water until it is boiling. Pour the water, a little at a time, into the bucket. The water will flow through the holes in the bucket, and collect in the wide pan. Allow the liquid in the wide pan to cool for two hours.

After two hours, pour the liquid from the wide pan, into the heat resistant pan once again. Throw away any sludge that has formed in the bottom of the wide pan. Boil the liquid for at least two hours. Remove the small grains of salt that appear on the surface during the boiling. When the liquid has boiled away half of its volume, remove it from the fire, and let it sit for one half hour.

After a half hour, add an equal volume of alcohol to the liquid as is still present. Tape the paper into place over the emptied bucket to use as a strainer. Pour the liquid through the paper. Small white crystals will appear on the paper.

These crystals are the potassium nitrate. To purify them, dissolve them in the smallest amount of boiled water they will dissolve in. Scoop out any salt crystals that appear on the surface of the liquid. Pour the dissolved crystals through a strainer made of several sheets of paper. Heat, or allow the concentrated solution to evaporate, forming crystals of potassium nitrate. Spread crystals out so that they may dry. The potassium nitrate may now be used.

PRIMARY EXPLOSIVES

Primary explosives are explosives that are very easy to set off. Because of this they are not used in large quantities to perform demolition work. They are instead used in smaller quantities to detonate larger quantities of secondary explosives. Primary explosives can often easily be set off by heat or shock. This makes them ideal for use as point detonating fuses, and as filler blasting caps. Some of the primary explosives listed here will work in the homemade blasting caps used to describe blasting cap theory in chapter three.

Different primary explosives have different qualities. Some are more sensitive than others. Some explode with more force. Experimentation may be necessary to find the one that most effectively suits the purpose.

Primary explosives should always be kept well clear of the secondary explosives they are intended to detonate, until the moment they are being used. This includes the ones that are being used as point detonating fuses in rockets.

DOUBLE SALTS

Materials

1. Nitric acid
2. Silver metal
3. Calcium carbide
4. Rubber tubing, and glass tubing 1/4 in. inside diameter
5. Paper towels
6. A wine bottle with a cork
7. A teaspoon

8. A high, wide, heat resistant container
9. A heat source
10. A high narrow jar
11. Tape
12. Water
13. Alcohol
14. A glass container

Put two and one quarter teaspoons of nitric acid into the high narrow jar. To this, add one and one half teaspoons of water. Put a silver, dime sized coin into the diluted nitric acid. It will turn green. If the coin does not completely dissolve, warm the solution.

Fill the high, wide heat resistant container with water, and put it over the heat source. This is a hot water bath. Place the jar containing the solution into the hot water bath in an upright position. Do not inhale the fumes from the acid. Crystals will begin to form in the solution as it is heated. Continue heating the solution until all the crystals dissolve.

During the heating process, punch a hole through the cork from the wine bottle. Push a length of rubber tubing through the cork. Arrange the tubing so that one end will be inside the bottle a few inches when the cork is placed back on the bottle, and the other end will be outside of the bottle.

After the crystals in the solution have dissolved, put ten tablespoons of calcium carbide into the wine bottle. Add one teaspoon of water into the wine bottle with the calcium carbide. When the calcium carbide and the water begin to react, add another teaspoon of water. Put the cork on the wine bottle, making a good seal. Place the free end of the rubber tubing into a glass section of tubing so it won't be dissolved. Put the glass tubing into the heated nitric acid solution. Let the gas created in the wine bottle bubble through the nitric acid solution for between five and eight minutes. White flakes will begin to appear in the nitric acid solution. When the time is up, remove the high narrow jar from the hot water bath, and allow it to cool.

Tape paper towels over the opening of the yet unused glass container to act as a filter. Once the solution has cooled, pour it through the paper towels. The green matter that collects on the filter should then have twelve teaspoons of alcohol poured over it to clean it. It will turn white when it is clean. Put the white matter on a clean paper towel to dry. It is ready once it is dry. This explosive is very shock and flame sensitive.

HMTD

This primary explosive needs a booster charge (picric acid) to be totally effective when used in detonators.

Materials

1. Hexamethylenetetramine
2. Hydrogen peroxide
3. Citric acid
4. Two glass jars
5. Paper towels
6. A teaspoon
7. A pan
8. Water
9. Tape

Put nine teaspoons of hydrogen peroxide into one of the glass jars. Dissolve two and one half teaspoons of crushed hexamethylenetetramine in the hydrogen peroxide.

Fill the pan with cold water. Place the jar containing the solution into the pan of water. Allow the solution to cool for thirty minutes before proceeding.

Dissolve four and one half teaspoons of crushed citric acid in the chilled solution. Take the solution out of the water bath, and allow it to set out for eight to twenty-four hours.

Tape paper towels over the mouth of the second jar to act as a filter. Pour the solution through the paper towels. The explosive is what collects on the paper towels.

Wash the explosive by pouring six teaspoons of water over it. Allow the explosive to dry. Throw away the liquid solution in the jar. The explosive is very shock and heat sensitive. Handle it with caution.

LEAD PICRATE

This primary explosive needs to be used with a booster charge (picrate acid) to be totally effective for use in detonators.

Materials

1. Litharge
2. Picric acid
3. Wood alcohol
4. A wooden rod
5. A dish
6. A teaspoon
8. A flat pan

Place two teaspoons of alcohol on the dish. Add two grams of picric acid to the alcohol while stirring with the wooden rod. Add two grams of litharge to the mixture. Continue to stir while adding the litharge, and until the alcohol evaporates. The alcohol will have evaporated when the mixture suddenly thickens. Keep stirring the mixture so that lumps do not form, making it into a powder. Spread the powder onto a flat pan to allow it to dry. The explosive is ready once it has dried.

MERCURY FULMINATE

Materials

1. Nitric acid
2. Mercury
3. 90% conc. ethyl alcohol (grain)
4. Paper towels
5. A teaspoon
6. A heat source
7. Wooden stick
8. Water
9. Two glass containers
10. Tape

Put two and one half teaspoons of water into a glass container. Add five teaspoons of nitric acid to the water. Dissolve one eighth of a teaspoon of mercury into the nitric acid. The solution should begin to give off dark red fumes. If it does not, add water, one drop at a time until it does.

Put ten teaspoons of alcohol into the second glass container. Warm the alcohol until it feels warm to sensitive skin (inside of wrist).

Pour the acid solution into the warm alcohol solution. The mixture will react, giving off dense white fumes within about five minutes. Give the reaction ten or fifteen minutes to complete.

While waiting for the reaction to complete, wash out the other glass container. Tape paper towels over the opening of the container to act as a filter. When the reaction has completed, pour the solution through the paper towels.

The crystals that collect on the paper towels are the mercury fulminate. They should be washed by pouring six teaspoons of alcohol over them. Then the explosive should be left out to air dry.

PICRIC ACID

This explosive can be used as a high explosive charge, or as a booster charge in detonators. When used as a booster, it is placed on, near, or around the primary explosive, and in contact with the secondary explosive. The picric acid is detonated by the primary explosive, and then sets off the secondary explosive.

Materials

1. Aspirin tablets (five grains each)
2. Alcohol (95% pure)
3. Concentrated sulfuric acid
4. Potassium nitrate
5. Water
6. Paper towels
7. A one pint jar
8. A wooden rod
9. Two glasses
10. A high sided dish
11. A cup
12. A teaspoon
13. A tablespoon
14. A pan

15. A heat source
16. Tape

Put twenty aspirins into a glass and crush them up. Add one teaspoon of water to the aspirins, and stir them into a paste. Stir in one half of a cup of alcohol.

Tape paper towels over the opening of the second glass to use as a filter. Filter the aspirin solution through the paper towels. Throw away the aspirin chunks left on the paper towels.

Fill the pan up with water and place it over the heat source to make a hot water bath. The water should be hot, but not be so hot that it burns to the touch. Pour the aspirin solution into the dish and spread it out. Place the dish into the hot water bath, upright. Make sure none of the bath gets into the aspirin solution. The heat from the hot water bath will evaporate the alcohol and water from the aspirin solution. A white powder will be all that is left when the evaporation is complete.

Pour one third of a cup of concentrated sulfuric acid into the jar. Add the white powder that remained from the evaporation process to the sulfuric acid.

Increase the temperature of the hot water bath until it is at a low boil. Place the jar containing the solution into the hot water bath, upright. Allow the solution to be heated for fifteen minutes. Remove the solution from the bath, it should turn to a yellow-orange color.

Add three teaspoons of potassium nitrate to the solution while stirring hard. The solution should turn red, and then back to its original yellow-orange color. Leave the solution to cool, returning to stir it often.

Clean out both glasses. Fill one glass with one and a quarter cups of cold water. Cover the opening of the second glass with paper towels to act as a filter. Pour the yellow-orange solution into the glass of cold water while stirring. Wait a minute, then pour the solution through the paper towels.

Pour two tablespoons of water over the particles in the paper towels to wash them. Spread the particles over the dish, and dry them in the same way the aspirin solution was evaporated earlier. After two hours the explosive will be ready.

TETRAMINMINECOPPER (II) CHLORATE

This explosive is used to set off a booster charge (picric acid) when used in detonators. By itself, and in small quantities, it is not powerful enough to cause most secondary explosives to detonate.

Materials

1. Sodium chlorate
2. Copper sulfate
3. Ammonia hydroxide
4. 95% pure alcohol
5. Clay or wax (used to make an airtight seal)
6. Water
7. Narrow necked bottle
8. Two jars
9. Rubber, or other tubing that will fit into the bottle
10. Teaspoon
11. Paper towels
12. Pan
13. Tape
14. A cup

Fill the pan up with water, and put it over the heat source to make a hot water bath.

Put one third of a teaspoon of sodium chlorate, and ten teaspoons of alcohol into one of the jars. Place the jar into the pan of water, upright. Add one teaspoon of copper sulfate to the mixture in the jar. Heat the solution in the water bath for thirty minutes, keeping it just under its boiling point. Add more alcohol as needed to keep the volume level of the solution up. After the time is up, remove the jar containing the solution from the water bath. Let the solution cool.

Tape paper towels over the opening of the second jar. When the solution has cooled, and turned from blue to light green, filter it through the paper towels taped over the second jar. Discard the material that collects on the paper towels. Set the solution aside.

Put one cup of ammonia into the narrow necked bottle. Put the tubing two inches into the bottle (not into the alcohol). Seal the tubing in place with the clay or wax. Put the free end of the

tubing into the previously made solution in the jar. Place the narrow necked jar containing the ammonia into the pan of water on the heat source. Heat it for about ten minutes, but don't boil it. Allow the ammonia gas to be bubbled through the solution in the jar. After the solution in the jar has turned dark blue, continue the process for another ten minutes.

Set the solution in an open area to allow it to begin to evaporate. Let two thirds of the solution in the jar evaporate before continuing on.

Wash out the first jar that was used. Tape paper towels over the opening of the jar to act as a filter. Filter the solution in the other jar through the paper towels. The crystals that collect on the paper towel are the explosive.

Wash the crystals by pouring one teaspoon of alcohol over them. Once they are washed, let the crystals dry for about sixteen hours. The explosive is both flame and shock sensitive.

SECONDARY EXPLOSIVES

These are the explosives that are used to do all of the work in demolitions. They require a blasting cap made up of primary explosives to coax them into exploding. These explosives should be put into metal enclosures to ensure they explode.

CARBON TET EXPLOSIVE

This explosive is a liquid. It will require a water tight enclosure, and special consideration when putting a blasting cap into it.

Materials

1. Aluminum bronzing powder
2. Carbon tetrachloride, or tetrachloroethylene
3. A wooden stirring stick
4. A bowl
5. Measuring cup
6. Waterproof storage container
7. Blasting cap
8. Enclosure (pipe, jar, etc.)

Put two parts by volume of aluminum powder into the bowl. Add one part by volume of carbon tetrachloride or

tetrachloroethylene while stirring with the stick. Continue stirring until the mixture becomes the consistency of honey. Store the explosive in a waterproof container. It evaporates quickly.

To use the explosive pour it into an enclosure, and detonate it with a blasting cap.

FERTILIZER EXPLOSIVE

Materials

1. Fertilizer with at least 32% nitrogen (ammonium nitrate)
2. Fuel oil or a 1:1 mix of gasoline and oil
3. Two flat boards, one must be hand sized
4. A bucket
5. Iron pipe or other enclosure
6. Blasting cap
7. Wooden rod

Rub handfuls of the fertilizer between the two boards until it becomes a fine powder. As soon as this is done, mix one part by volume of fuel oil with sixteen parts by volume of crushed fertilizer in the bucket. Stir with the wooden rod. The explosive is finished, make sure it is stored in an airtight container.

To use the explosive, put it into the enclosure with a blasting cap. Make sure that the explosive is not tightly packed, or it will require more force than one blasting cap to detonate it.

FERTILIZER AND ALUMINUM EXPLOSIVE

Materials

1. Fertilizer, as above
2. Aluminum bronzing powder
3. Measuring cup
4. A bowl
5. Two boards, as above
6. A storage container
7. Wooden stir stick

Crush the fertilizer with the boards as above. Mix four parts by volume of fertilizer with one part by volume of aluminum powder in the bowl. Stir with the wooden rod. Store explosive in an airtight container. Use explosive in the same manner as the first fertilizer explosive.

HELLHOFFITE EXPLOSIVE

This explosive is a liquid. It is also an acid. Coat anything (not acid resistant) that will remain in contact with it in wax. Use an acid-proof container such as a jar to contain the explosive.

Materials

1. Nitric acid
2. Mononitrobenzene
3. Glass measuring cup
4. Glass stir rod
5. A jar

Mix one part by volume of mononitrobenzene and two parts by volume nitric acid in the jar. Stir the ingredients with the glass rod.

To use, coat a blasting cap and any metal to be used as an enclosure in wax. Pour the explosive into the container. Place the blasting cap into the surface of, but not submerged in the explosive. Seal the container if possible.

NITRIC ACID AND PAPER EXPLOSIVE

Materials

1. Nitric acid
2. Paper or cloth
3. Aluminum foil
4. An acid-resistant container
5. Acid resisting gloves

Place a sheet of aluminum foil down on a flat surface. Put a layer of paper or cloth down on top of the aluminum foil. Put on the protective gloves. Pour nitric acid over the paper or cloth until it is saturated. Place another piece of paper or cloth over the first one. Add more nitric acid. Continue to add paper or cloth and nitric acid until there are as many layers as needed.

When there are enough layers, roll up the aluminum foil with the paper or cloth and nitric acid on top of it. Insert the roll into the acid resistant container.

To use the explosive, first wait about five minutes. Insert a blasting cap into the roll. It is now ready for detonation.

POTASSIUM CHLORATE PLASTIC EXPLOSIVE

Materials

1. Potassium chlorate
2. Petroleum jelly
3. Rolling pin
4. A bowl

Spread the potassium chlorate over a hard surface. Roll over the chemical with the rolling pin until it becomes a fine powder. It should resemble flour when it is finished.

Mix nine parts potassium chlorate powder with one part petroleum jelly in the bowl. Knead the mixture until it is a thick paste. The explosive is ready.

SODIUM CHLORATE AND SUGAR OR ALUMINUM EXPLOSIVE

Materials

1. Sodium chlorate
2. Sugar (granular) or aluminum bronzing powder
3. Wooden stir stick
4. Jar
5. Measuring container
6. Enclosure

Put three parts by volume sodium chlorate into the jar. Add two parts by volume sugar, or one part by volume aluminum powder. Stir with the wooden stick.

To use, put the explosive into the enclosure. Insert a blasting cap. The explosive is ready for detonation.

BLASTING CAPS

Blasting caps are small weatherproof enclosures containing primary explosives. They are inserted into secondary explosives and detonated to coax the secondary explosives into going off. Two examples of homemade blasting caps are given in chapter three. The same processes as in chapter three can be used with the primary explosives in this chapter to create a much better effect. It may be desirable to put the booster charge (if one is needed) inside the blasting cap with the primary explosive.

WEAPONS

Improvised weapons are easy to make once one has access to explosives and the proper tools. Creativity is important too. The following weapons are examples to help get you started.

GRENADES

A grenade is a hand held device that explodes. Hopefully it explodes after it has been thrown. An expedient grenade is as simple as an explosive filled pipe with a fuse and a blasting cap to get it to go off. There is no point in explaining such a simple device any further than this.

SHAPED CHARGES

Two fine examples of shaped charges are in chapter three. Refer there to find out about them.

MOLOTOV COCKTAILS

A molotov cocktail is simply a bottle filled with flammable liquid (gasoline) with a flaming rag stuffed into the neck of it. The fuel in the bottle will not explode in any way. Once the bottle breaks, the fuel catches on fire. The burning fuel will ignite whatever flammable objects it comes into contact with.

To make the fuel a little stickier, and burn a little longer, mix a thickener in with it. Try small amounts of detergent, cooking oil, or peanut butter.

CIGARETTE TIMERS

A timer can be made out of a cigarette for use with a wick. Poke a hole through the tobacco part of the cigarette near the filter. Push some fusing through the hole. Light the cigarette. When the cigarette burns down to where the fusing is, it will set it on fire. The fusing can then burn until it reaches the primary explosive.

ROCKET PROPELLED DEVICES

So you've got yourself a nice warhead that is sensitive enough to detonate on impact, but no way to launch it. A simple

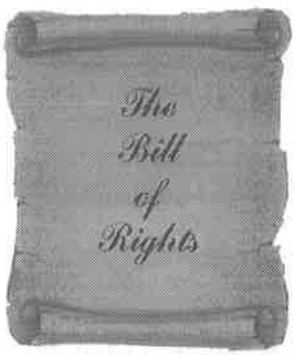
way to launch your warhead without much knowledge of rocket engines is to use model rocketry engines.

Using the largest size, and wired in parallel (not series), model rocket engines can produce a good thrust. After experimenting with them, I decided that they are better than using homemade engines. The kind of engine with a separation charge (for parachute deployment) would seem to be problematic, but it is not. The separation charge can be focused into the main charge of the warhead to ensure that the warhead detonates after a few seconds whether it hits its target or not. For short range artillery type attacks, use the kind without a separation charge.

The rocket engines are ignited by a metal filament called an igniter. These filaments are designed to be ignited by special blasting, or car batteries. When the igniters are hooked up to the two terminals of these batteries, the current causes them to flame out. After experimentation, I learned that igniters can be set off with a simple nine-volt battery. This makes a high portability launching system very easy to construct (i.e. a nine volt battery taped to fiberglass tubing with alligator clips dangling from its terminals).

Rocket projectile design is simple if some basic rules are followed. The projectile center of gravity must be ahead of its center of force. In short this means that there must be more wind resistance behind the center of balance than ahead of it on the projectile. Put the weight in the front, and the wind resistance in the rear. Any surface area causes wind resistance, hence, lots of fins in the back. If these rules are ignored, don't put a live warhead in the first rocket that is launched.

Make sure that the human launching the rocket is protected from the exhaust. If more than one engine is wired in parallel, this is especially important. Put a blast shield where the human operator will have his head.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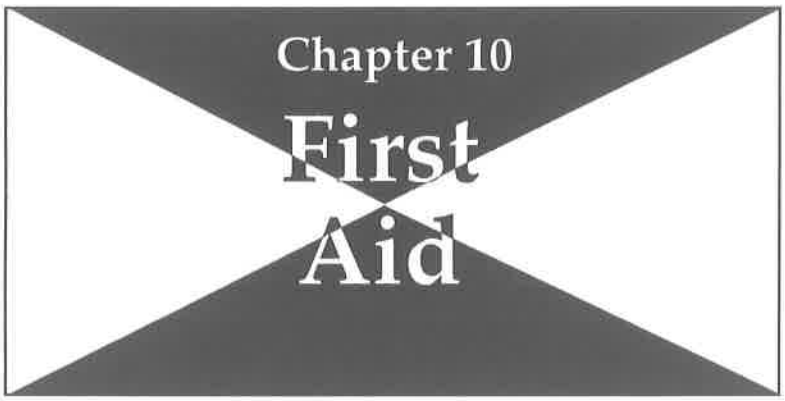


This chapter is meant to inform the reader on what to do in the face of certain battlefield wounds. Members of a military organization should be trained to administer first aid. The instructions for treating these wounds have been kept as brief as possible to allow for quick reference. These are instructions on how to stabilize a wound. Casualties should be treated at a hospital or by a real doctor as soon as possible after becoming seriously wounded.

APPLY A FIELD DRESSING

A field dressing is what the army uses to stop bleeding. If you do not have access to one, 6" by 6" wads of thick clean cloth along with longer strips to hold them in place may be used. A field dressing is the first line of defense against wounds.

A. Uncover the wound unless clothing is stuck to it.
B. Apply the wadded part of the field dressing over the wound.
C. Wrap the long ends of the field dressing around padded part, covering it. Cover it completely, and make a good seal. If using a homemade field dressing, wrap a long strip of cloth around and around the wad over the wound, covering it completely.
D. Make sure dressing is tight, but not causing a tourniquet-like effect.

E. If still bleeding, apply manual pressure to the wound while holding it above the casualty's heart for 5 to 10 minutes. If casualty has a fracture, splint it first.
F. If necessary apply a pressure dressing over the field dressing. While holding the wound over the level of the casualty's heart, place a large ball of cloth on top of the wound and field dressing. Then wrap another strip of cloth tightly over the ball, fastening it to the wound on top of the other field dressing. Tie the cloth in a non-slip knot directly over the wound (ball of cloth).
G. Make sure the dressing is not causing a tourniquet-like effect.

PUT ON A TOURNIQUET

A tourniquet is a last resort. It should only be applied if there is no other way to stop the casualty's bleeding. Tourniquets are for when an arm, leg, or part of an appendage is missing. Tourniquets should be used when a regular dressing will not stop the bleeding. A casualty wearing a tourniquet will often lose his or her limb below the tourniquet when it is left on too long. For this reason a casualty wearing a tourniquet should receive professional medical aid as soon as possible.

A. Using a strap, or strip of cloth at least 2" wide place the tourniquet 2 to 4 inches above the top of the wound, but not on a joint.
B. Tie the tourniquet in a half knot, then place a stick over the half knot. This is to secure the stick so that it can be turned to tighten the strap, stopping the bleeding. Next, tie a full knot over the stick and twist it until the bleeding has stopped.
C. Secure the stick by tying it in place with another rag.
D. Draw a "T" on the casualty's forehead with his blood to indicate that he is wearing a tourniquet.

TREAT AN ABDOMINAL WOUND

This is a wound in the area of the intestines. After an abdominal wound intestines and organs may be hanging out. This

should not cause panic because intestines are easily clipped and resewn, or replaced in a hospital.

A. Place the casualty on his back with his knees up in a flexed position.

B. Uncover the wound, unless clothing is stuck to it.

C. Using the cleanest material available pick up any organs which are on the ground and place them on top of the casualty's abdomen. Do not attempt to replace organs in wound.

D. Cover the wound, and organs with a field dressing. If the dressing is too small, a blanket or other clean material may be used.

E. Do not give the casualty food or water.

TREAT A CHEST WOUND

A chest wound may be sucking in air when the casualty breathes. These directions are for treating sucking chest wounds, but should be used for all chest wounds.

A. Uncover the wound, unless clothing is stuck to it.

B. Apply an airtight material such as a piece of plastic over the wound, without touching its surface with bare fingers, after the casualty breathes out completely. Hold this in place.

C. Place a field dressing over the casualty's wound, and the plastic. Wrap the tails of the dressing (another strip of cloth if using your own dressing) either way around the casualty's body. Tie them in a knot over the padding, over the wound. Maintain pressure on the airtight material while wrapping the strips around the casualty.

D. Make sure the dressing is tight enough, but does not interfere with breathing.

E. Place the casualty on his injured side, or in a sitting position, whichever makes breathing easier.

TREAT A HEAD WOUND

Do not attempt to move casualty if it appears that there is a spinal, or very severe head injury which entails move than just bleeding.

A. Make sure the casualty has a clear airway and have him sit up if possible.
b. Apply field dressing over the wound and wrap tails around the head. Try not to cover the eyes, ears, mouth, or nose.
C. If casualty falls asleep, wake him every fifteen minutes. Do not attempt to replace any lost brain material.

PREVENT SHOCK

This should be done after any serious wound or significant blood loss. Shock is just as dangerous as some wounds.

A. Move casualty to cover.
B. Lay casualty on his back, unless a sitting position allows him to breathe easier.
C. Elevate casualty's feet.
D. Loosen tight clothing.
E. Keep casualty from chilling or overheating.
F. Reassure the casualty by talking to him. Tell him he is going to be alright. Keep him calm. Tell him he is being taken care of.
G. Turn his head to one side if it is necessary to leave him.

SPLINT A SUSPECTED FRACTURE

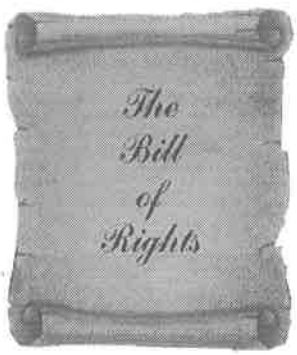
A fracture may be marked by bones protruding from the skin, excessive pain, or inability to move a joint. A fracture is any break in the bones of a limb.

A. Use splints that reach beyond the joints above, and below the fracture. Any long semi-flat object will work as a splint.
B. Check circulation before and after applying splints.
C. Apply padding between the splints and all bony areas on the fractured limb.
D. Use at least four ties (two above and two below the fracture) to secure splints.
E. Tie nonslip knots on the splints away from the injury.
F. Immobilize the splint using a sling and or swathe cloth so that it does not move easily.

G. Do not try to straighten the fracture or place ties directly over the fracture.

TREAT A SEVERE BURN

A. Remove source of burn from casualty. Remove chemicals by flushing the burn with water. Phosphorus will burn as long as it is exposed to air, so cover it in mud if possible.
B. Cut and gently remove clothing on and around burn unless it is stuck to the burn.
C. Apply field dressing over burn.
D. Do not break any blisters, apply any ointments, or apply a dressing over the casualty's face or genitals.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